PRINCIPLES OF OCEAN TRANSPORTATION

JOHNSON AND HUEBNER

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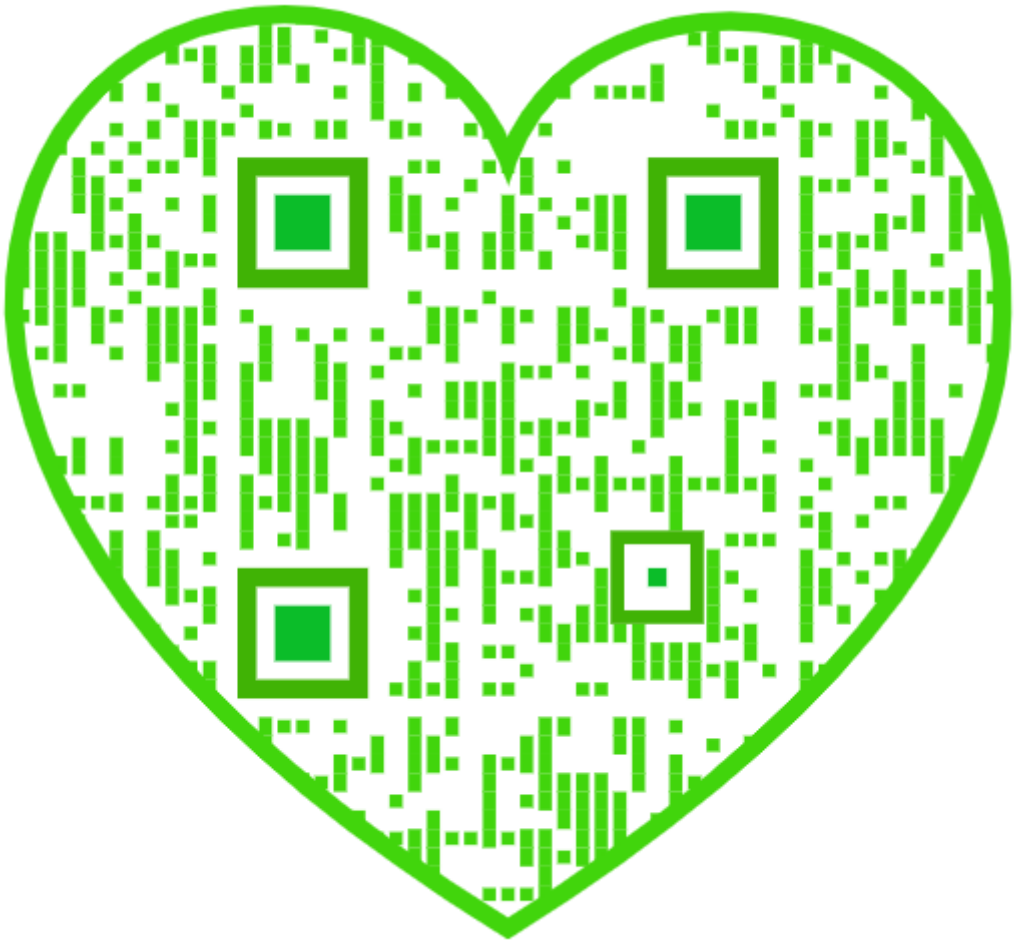

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PRINCIPLES OF OCEAN TRANSPORTATION

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PRINCIPLES OF OCEAN TRANSPORTATION

BY

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PREFACE

EXPERIENCE in teaching transportation to university students and in conducting special investigations for the government has made evident to the authors of this volume the need of a book dealing systematically and comprehensively with the whole subject of ocean transportation. While many books, some of them technical, others popular in character, have been written upon different phases of the general subject, there is no single volume to which college student, steamship man, and shipper can turn for a description of ocean carriers and their services, an account of ocean conferences, an explanation of ocean rates and fares, and a discussion of the principles and practices of government aid and regulation of ocean shipping.

This book is intended to supply such a volume. It does not attempt to treat exhaustively the many questions included in the complicated and somewhat technical subject of ocean transportation, but it seeks to present the essential facts regarding each important part of the field. It is a book for individual study or for classroom use. The references at the ends of the chapters will enable the special or technical student and the business man who uses or operates vessels to pursue further his study of the particular subject in which he may be especially interested.

The book reproduces the most important forms employed in conducting ocean transportation, and references are made to some forms whose reproduction was not deemed practicable. The originals of these and other forms ought to be in the hands of teachers who use the book with classes; and provision should be made for the examination of these original forms by the individual students. By applying to shipbuilding and steamship companies, to freight forwarders and ship brokers, and to the appropriate departments and bureaus of the United States Government, teachers can, without great trouble, secure a duplicate set of original forms. A careful examination of these original forms will help the student secure a concrete and intimate knowledge of the ocean shipping business.

The policy which the United States Government should follow in supporting and regulating the merchant marine is a question of first importance for the present and for the future. This book is not a polemic in support of a particular method of building up and maintaining a vigorous merchant marine. In discussing government policy the main purpose has been to present the facts upon which the reader may base a judgment. The authors have, however, stated the conclusions they have reached. Time and the test of experience will determine whether those conclusions are sound.

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PART ONE

THE OCEAN TRANSPORTATION SYSTEM

CHAPTER I

THE HISTORY OF THE OCEAN CARRIER—THE SAILING VESSEL

Classification of sailing vessels, 4. Full-rigged ship, 5. Bark and barkentine, 5. Sloop and schooner, 6. Other types of sailing vessels, 6. Main features of history of sailing vessels in nineteenth century, 10. Growth in size and improvement in sailing qualities of full-rigged ships, 10. Development of packet lines, 10. Clipper ships, 11. Development of schooners, 12. Substitution of steamers, 13. Future uses of sailing vessels, 15. References, 16.

THE history of ocean transportation presented in this and the following chapters is written primarily with reference to the maritime commerce of the British colonies in America and of the United States. The account is confined to the period since the beginning of the seventeenth century, and contains a description of the several types of ocean carriers that have been successively employed by Americans for the carriage of their domestic and foreign commerce.

The two principal types of vessels now used in ocean commerce, the sailing vessel and the steamer, have passed through numerous stages in reaching their present highly efficient forms. A brief study of the evolution of the sailing vessel during the past 300 years, and of the steamship during the past century, will throw light upon the history of the service as well as of the agent of ocean transportation. Other types of deep-water vessels have begun to be developed in recent years, particularly seagoing barges and vessels equipped with internal-combustion engines. Vessels, other than those moved by towage, are now to be classed as sailing vessels and vessels propelled by engines. In general, the agencies employed are developed with reference to the service; and they indicate, at

least in a rough way, the nature and importance of the transportation services performed from period to period.

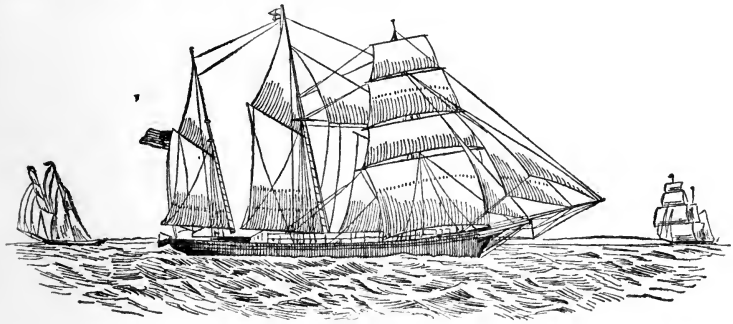
A ship is a facility used by shippers and traders. The adaptation of the mechanism to the work to be performed has been far more rapid during the past 50 years than during previous periods; but at all times shipwrights must have striven to build as efficient ships as the technical knowledge and material resources at the command of the builders would permit them to construct. It is a fact sometimes overlooked, that the present-day organization and management of domestic and foreign trade necessitate the use of types of vessels very unlike those required by traders 100 years ago. While it is true that the technical improvements in transportation and communication facilities have made possible the existing organization of commerce, it is equally true that the size and character of ships now being built are determined by the requirements of trade. This fact will be illustrated in later chapters.

Classification of Sailing Vessels

Until the fifth decade of the nineteenth century the sailing vessel was the only ship employed in ocean commerce. In its technical evolution numerous types have been successively constructed, to each of which special terms were applied that need to be explained in order to be understood by the landsman who has not made a study of nautical phraseology. The various kinds of sailing vessels are classified mainly according to the number of masts the vessel has, and the rig of its sails. The shape of the bow and hull (as in the case of the "clipper ship") may also account for the name given to the type of ship.

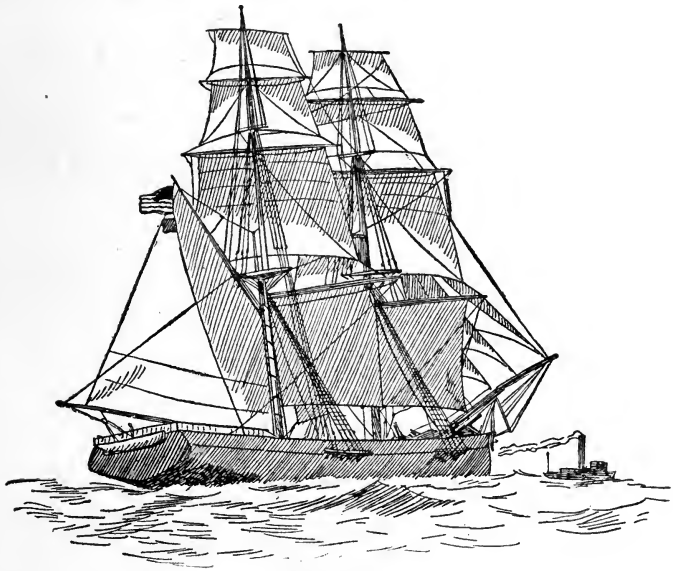
There are two methods of rigging the sails on the masts. In the "square-rigged" vessel, the yards or beams to which the sails are attached are so suspended from the mast as to cross the mast and extend equal distances on each side; while in the "fore-and-aft" rig the yardarms by which the sails are spread do not cross the mast, but extend from only one side of the mast.

A full-rigged "ship" is a sailing vessel having three or more masts, on all of which the sails are square-rigged. A



A Lake Barkentine

three-masted vessel having its two forward masts—the fore- and mainmasts — square-rigged, and its after- or mizzen-mast fore-and-aft rigged, is a bark. A barkentine has the



A Modern Brig

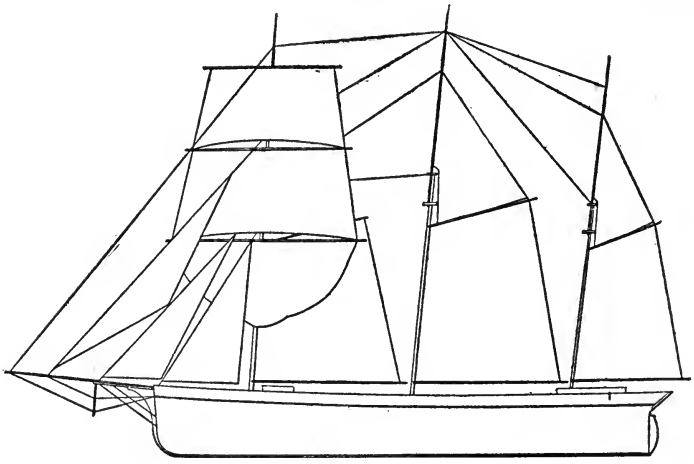
From J. R. Spears, *The Story of the American Merchant Marine.*

foremast square-rigged and the main- and mizzenmasts rigged fore-and-aft. A brig is a vessel with two masts both square-rigged. A brigantine differs from the brig in having the aftermast fore-and-aft rigged.

The principal deep-sea vessels having only the fore-and-aft rig are the sloop and schooner. The sloop has but one mast; the schooner has two or more. Schooners having five, six, and even seven masts, have been constructed during the past few years.

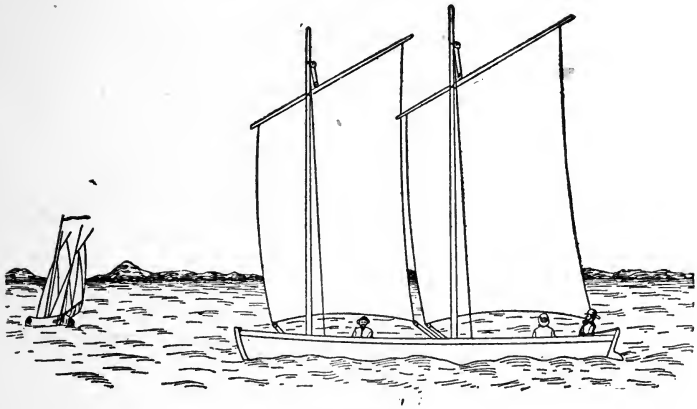
At the time of the settlement of America, early in the seventeenth century, the largest ocean vessels were the full-rigged ship and the bark; but the brig or brigantine of less than 100 tons burden was more frequently used. A two-masted vessel known as the "snow," now entirely obsolete, was also used at that time. It was much like a brig, except that its mainmast carried a fore-and-aft sail surmounted by a square topsail.

The coasting and fishing vessels most used by the English



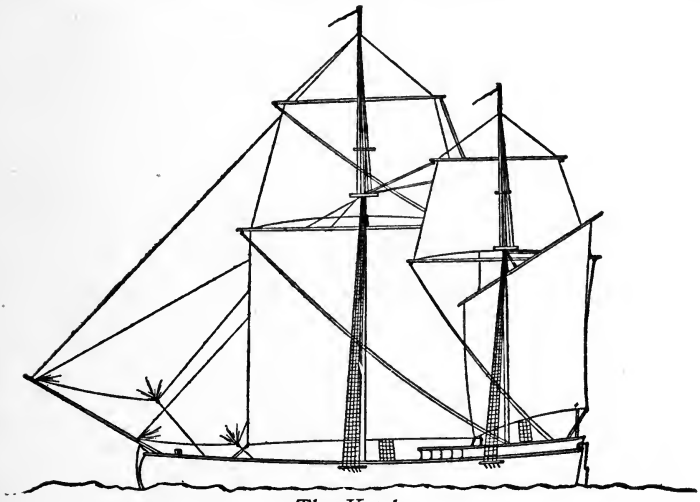
Three-Masted Schooner .

were the sloop, the lugger, the ketch, the shallop, the smack, the pink, the bug-eye and the sharpie. The lugger had one or two masts, each rigged with square or lug sail. The ketch had two masts—"one tall mast, with two or more crossed



The Lugger

yards, set well back from the bow toward amidships, and a smaller mast, also with square sails, nearer the stern." [1] The

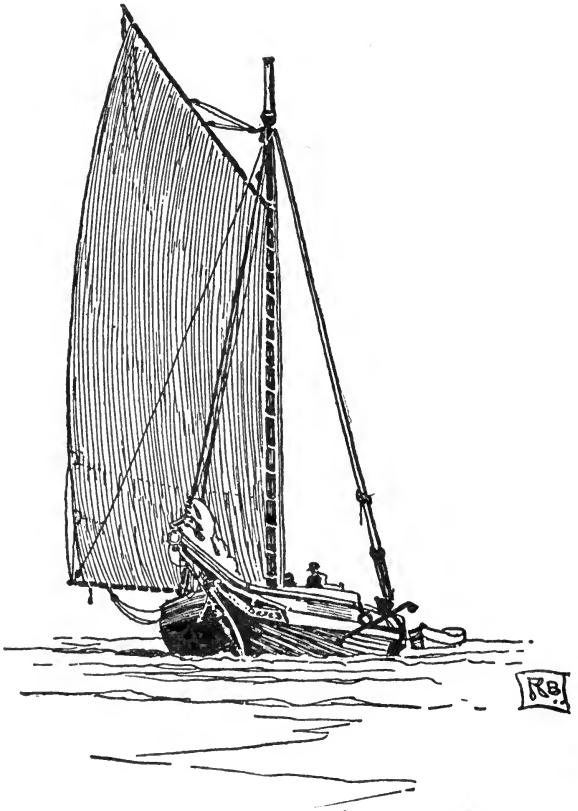


The Ketch

chief merit of the ketch was that there were two sails on each mast, instead of one heavy, unwieldy lug sail. In some ketches there were both square and fore-and-aft sails in the

[1] W. L. Marvin, *The American Merchant Marine*, 22.

rigging. The American colonists used the ketch for their coasting trade, until they designed the far more serviceable schooner. The ketch was a slow vessel, and its square sails were handled with difficulty upon its narrow deck. The shal-



The Shallop

From W. J. Abbot, *American Merchant Ships and Sailors.*

lop and early smack had but one mast equipped with a fore-and-aft sail; the pink was rigged like a two-masted schooner, but without a bowsprit or jib; the bug-eye was also a two-masted vessel with fore-and-aft rig, but with sails of a peculiar shape; and the sharpie was a two-masted fishing vessel frequently rigged like a schooner. Some of these smaller ves-

sels still survive, although in many instances the type is obsolete.[1]

Of all the above-mentioned types of vessels the most distinctively American was the schooner, the first of which was constructed by Andrew Robinson at Gloucester, Mass., in 1713. Each of the two or more masts with which they were equipped bore a fore-and-aft sail, and a jib sail was placed forward. The lines of the schooner were sharper than those of its predecessors; it could sail faster and closer to the wind, and could be managed by fewer hands than the square-rigged vessels required. The economy and the efficiency of the schooner were soon recognized in America, especially in the coasting trade. The vessels used for the transoceanic trade, however, did not entirely abandon the square sails after the appearance of the schooner, but modified their rigging by using both square and fore-and-aft sails. According to Marvin:[2]

> For many years after 1713 the American schooner represented a compromise. The prevailing type was the so-called schooner, carrying the Robinson fore-and-aft foresail and mainsail, but bearing on the foremast a lower and a topsail, and sometimes a topgallant yard,[3] and thus combining the good qualities of the fore-and-aft and the square rig. It was the topsail schooners which were the favorite privateers of the Revolution and the War of 1812.

The character of the shipping constructed in America near the close of the colonial period is illustrated by the figures for 1769, during which year 113 square-rigged vessels and 276 sloops and schooners were built. The tonnage of these 389 vessels was 20,001.

Reference is here made to but a few of the leading types of sailing craft, and to only the most important changes in the rig and construction. At the beginning of the seventeenth century the ships were of the caravel type of construction, with

[1] W. J. Abbot, *American Merchant Ships and Sailors*, 9.

[2] *The American Merchant Marine*, 23.

[3] The first or lowest sail on the mast is called the lower sail, the second one the topsail, the third the topgallant. The large full-rigged ship may carry a fourth or royal sail, and even a fifth or skysail. The lower sails on the fore and main masts were the foresail and mainsail.

a high cabin structure above the deck aft and a high forecastle forward. These superstructures lessened the seaworthiness of the ship and made sailing against opposing winds slow, and, in the case of storms, dangerous. During the seventeenth and eighteenth centuries the depth of the ships was increased, and the practice of constructing cabins above deck was gradually abandoned.

The main features of the history of the sailing vessel during the nineteenth century were (1) the growth in size and the improvement in the sailing qualities of the square-rigged ship; (2) the development of numerous important "packet lines" with vessels sailing at regular intervals to handle the mails and to carry the large traffic that accompanied the growth of the United States after the War of 1812; (3) the development of the schooner from a two- or three-masted to a four-masted wooden vessel, and then to a five-, six-, or seven-masted steel vessel; (4) the gradual and steady substitution of steamers for the ship and the schooner in both oversea and coastwise commerce.

Clipper Ships and Packet Lines

At the beginning of the nineteenth century the sailing vessel was still relatively small; 300 tons was considered a large register even for a full-rigged ship, although ships of larger tonnage had been constructed. At Salem, Mass., for example —the center of the important American-East India trade during the half century following the Revolutionary War—the largest ship in the merchant fleet as late as 1825 was of 400 tons. The rich trade of Salem with the Far East was built up by the use of ships averaging less than 300 tons.

The traffic between New York and England first led to the construction of the large sailing ships, as it has later caused most of the largest steamers to be built. At the close of the War of 1812 ships of 400 to 500 tons were put into service, and the size was steadily increased until about 1840, when double-decked ships of 1,000 tons were being sailed. The first three-decker, the *Guy Mannering*, was built in 1849, with a tonnage

of 1,419. Between 1850 and 1860 a ship of 1,500 tons gross register was not phenomenally large; indeed, some as large as 2,500 tons were launched and successfully operated. After the discovery of gold in California the traffic between the Atlantic and Pacific seaboards of the United States, as well as the transatlantic business, caused a demand for spacious and swift sailing vessels.

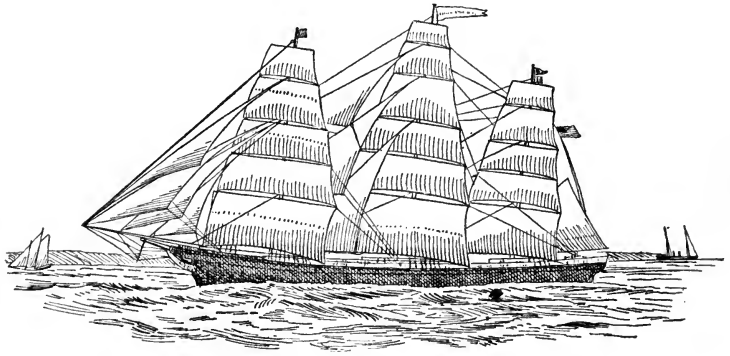
The large ships built at the close of the War of 1812 were those constructed for the American transatlantic lines that operated their ships, so far as possible, according to a fixed schedule of sailings. The vessels connected with these lines carried the mails, and for that reason they were called "packet" ships. The lines were called packet lines, and they date from 1815, when the celebrated Black Ball Line from New York to Liverpool was started. Numerous other important packet lines were soon afterward established to handle the increasing travel and traffic that resulted from the growth of the United States.

The square-rigged vessel reached the acme of its development in the "clipper" ships, the construction of the first of which, the *Rainbow,* was begun in 1843, and the launching of which occurred in 1845. The American clipper was given a bow with concave water lines, relatively great breadth at a point well aft of the bow, and a long overhanging stern or prow.[1] The two causes that led to the construction of the first clipper ships were the trade with China and India, and the competition of the steamships in the north Atlantic trade. In order to hold the trade with the Far East against the competition of foreign sailing vessels, and to retain the traffic between the United States and Europe against the rivalry of the steamship lines that were being rapidly established, the American shipwrights designed the fleet clipper ships which for a decade and a half were the pride of American sailors. The demand for clipper ships was greatly increased by two other events: the rush of people, in 1849 and 1850, to the newly dis-

[1] The American "clippers" should not be confused with the smaller so-called "Baltimore clippers" of earlier years, which were not full-rigged vessels, but were brigs, brigantines, and fore-and-aft or topsail schooners ranging from 90 to 200 tons.

covered gold fields of California put a premium on speed, and clipper ships were rapidly constructed for the New York and San Francisco service via Cape Horn. When the demands of that traffic had been met, the Crimean War broke out in 1854, and France and the United Kingdom bought a large tonnage of American ships to use as transports. In 1855 there were 583,450 tons gross of shipping constructed in American yards, a greater total than was reached any year prior to 1917.

The largest clipper ship ever constructed was the *Great Republic* (see illustration below). This vessel was 335 feet long, 53 feet wide and 38 feet deep, had four decks, four masts and a register tonnage of 4,555 tons.

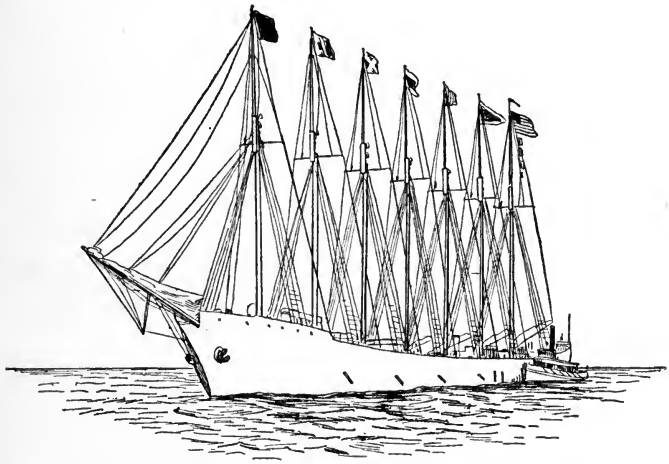


A Clipper Ship

Development of Schooners

Since 1858, and particularly since the close of the Civil War, the construction of square-rigged vessels—ships, barks, barkentines, and brigs—has tended to fall off, the preference of builders being given to schooners. Since 1885 almost all the sailing vessels launched in the United States have been schooner-rigged. The huge five- to seven-masted sailing vessels constructed from 1899 to the present time have mainly been schooners, and they bear little resemblance to the typical wooden sailing vessel of 50 years ago. The largest schooner ever built (there are others nearly as large) was the *Thomas*

W. Lawson, which was wrecked in 1907. It had seven masts and measured 5,218 tons gross and 4,914 tons net. It could carry from 7,000 to 8,000 tons of cargo. The length over all was 375 feet, the beam 50 feet, the draft loaded 26 feet. The masts were 195 feet high, the first 135 feet being steel and the top 60 feet wood. The maximum possible spread of sail was 43,000 square feet, an area about equal to an acre. Dummy engines were employed to handle the sails, to work the rudder, to load and unload the cargo, and for numerous other purposes. The vessel was as up-to-date in its appointments as is the most modern freight steamer, about the only difference between the two vessels being in the motive power employed. (See illustration below.)



The Seven-Master Schooner—*Thomas W. Lawson*

Substitution of Steamers

The rôle of the sailing vessel in American commerce is, however, a narrowing one; and it is not probable that even the construction of huge steel schooners will enable the sailing vessel to hold its own in competition with steam power. Although the mercantile marine under the flag of the United States contains a larger proportion of sail tonnage as com-

pared with steamers than is true of the marines of most countries, 71 per cent of the tonnage of American vessels engaged in the foreign trade and 68 per cent of the documented domestic fleet consist of steamers. The substitution of steam for sail has been going on steadily for a long time, and during recent years the change has been especially rapid. From 1900 to 1914 the sail tonnage of the United States in the foreign trade, including barges, fell off 134,074 tons gross, while the steam tonnage increased 383,532 tons gross. During the same 14 years the sail tonnage of the documented domestic fleet, including canal boats and barges, increased 128,194 tons, while the figures for the steamers rose 2,386,197.[1]

The total sail tonnage of the domestic fleet has begun to decline, the rapid growth of coastwise and Great Lakes tonnage being due mainly to the construction of steamers and barges. Indeed, there has been more of a decrease in the sail fleet than the figures just given indicate, because they include barges and canal boats. The entire documented sailing fleet of the United States, excluding barges and canal boats, declined from 1,884,842 tons gross in 1900 to 1,310,937 in 1916. During the same sixteen-year period, the documented steam tonnage advanced from 2,657,797 to 6,070,063 tons gross.

In the merchant marine of the world as a whole, the tonnage of steamers first exceeded that of sailing vessels in 1893; but during the following 23 years the change was so rapid that the sail tonnage was only three-fourths that of 1893, while the steam tonnage had nearly doubled. At the present time slightly over 10 per cent of the world's tonnage is sail. The speed and regularity of the steamer's movements so exceed those of the sailing vessel that fully nine-tenths of the tonnage of the world's commerce is now handled by steamers.

The sailing vessel is giving way to the steamer, because the steamer is more efficient and more economical. The motor power of the sailing vessel costs nothing, its net cargo capacity is large, and a smaller crew is required to operate a sailing

[1] Year 1914 selected rather than 1915 or 1916, because during the latter years war conditions caused many vessels formerly engaged in the domestic trade to register for the foreign trade.

vessel than a steamer of equal tonnage; but these advantages are more than offset by the slow average speed of the sailing ship, and the uncertainty as to the time of delivering cargo assigned to a ship whose movements depend upon winds and currents instead of upon its own propelling power. At the present time a vessel propelled by engines is considered to have on the average from three to four times the efficiency (as a freight carrier) of a sailing vessel of equal tonnage. This is what enables the steamer to take traffic away from the sailing vessel, despite the disadvantages which the steamer has as regards the cost of coal, the large amount of space taken up in the steamer for coal bunkers and machinery, one-fourth to one-third of the hull capacity, and the somewhat larger crew required.

Future Use of Sailing Vessels

Until within a few years it was thought that the sailing vessel would always be used exclusively for certain classes of bulky goods carried over long routes, such as traffic in nitrate of soda from Chile to Europe, grain and lumber from the Pacific coast of the United States to Europe, and the trade between the Atlantic coast of the United States and Australia; but even in the trade over these routes the steamer is competing successfully with the sailing vessel. The opening of the Panama Canal has still further narrowed the sphere of the sailing vessel.

The sailing vessel will doubtless be used for some time to come, especially by the people of the United States, but it will probably be employed mainly for two classes of service. One of these fields of usefulness will be that part of the coasting trade of the United States that cannot readily be so organized as to be performed by regular lines of steamers. The other use to which we shall continue to put the sailing vessel will be that of performing the irregular or skirmish work of international trade—such, for instance, as that formerly carried on between the Gulf ports of the United States and the river Plata. In the earlier development of such a traffic the sailing

vessel is a convenient agent; but when the trade becomes larger, and the exchange of commodities between the two sections becomes regular and continuous, a line of steamers is established, and many of the sailing vessels are withdrawn from the service.

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CHAPTER II

THE HISTORY OF THE OCEAN CARRIER—THE STEAMSHIP

Main phases of development of steamers, 17. Early steamships, 17. Application of steam power, 17. Evolution of marine steam engines, 21. Reciprocating engines, 22. Turbine engines, 25. Engines of large passenger steamers, 27. Marine boilers, 28. Evolution of steamship hulls, 30. Change from wooden to iron and steel hulls, 31. Size and speed of largest ocean steamers, 32.

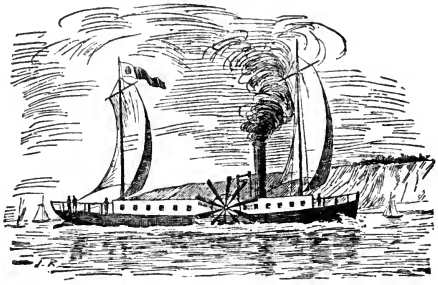
The steamship has had a briefer but more complicated technical evolution than the sailing vessel. The main phases of the development of the present-day steel steamer may be summarized by a brief description (1) of the application of the power of propulsion, first by paddle wheels, then by the screw; (2) of the evolution of the marine engine by which the power is generated; (3) of the change from wooden to iron and to steel hulls, and of the equipment of ships with appliances to add to the safety and comfort of travel; and (4) of the number and arrangements of the decks.

The Application of Steam Power

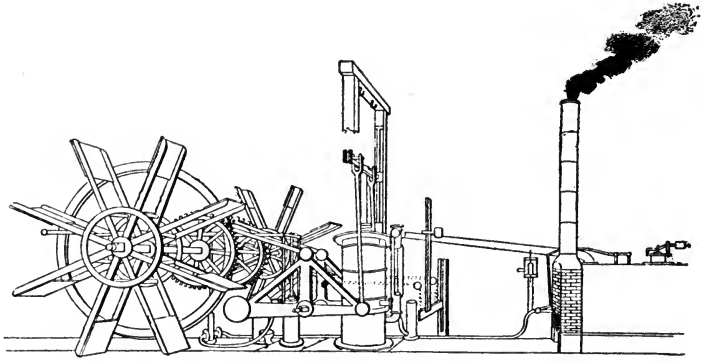
The practicability of using steam power to propel ships was demonstrated by Robert Fulton in 1807, when he ran the *Clermont* from New York City to Albany.[1] The use of steamboats on rivers and bays became general during the succeeding 10 years, but it was 30 years after the *Clermont's* first trip before it was demonstrated that the steamship could be used with commercial success in the transoceanic service. As early as 1819 a sailing packet of 380 tons, the *Savannah*, was

[1] Earlier experimental steamships were those designed by James Rumsey, John Fitch, Oliver Evans, John Stevens, and Robert R. Livingston—all Americans—and William Symington of Scotland. See John R. Spears, *The Story of the American Merchant Marine*, chap. ix (1915).

equipped with a 90 horse-power horizontal engine and with paddle wheels. This ship crossed the Atlantic from Savannah to Liverpool in 25 days, during 18 of which she used steam power; but the next year the engine was taken out of the ship.



The *Clermont*



Engines of the *Clermont*

From J. R. Spears, *The Story of the American Merchant Marine.*

The first vessel to cross the ocean all the way under steam was the *Royal William,* which made the trip from Quebec via Nova Scotia and the Isle of Wight to London in 1833.

The first steamship built for the transatlantic service was the *Great Western,* constructed for the Great Western Railway interests, and launched at Bristol, England, in 1837. Her initial trip was made from Bristol to New York, April 8 to 21,

1838. The same year three other British steamers—the *Royal William* (No. 2), the *Sirius,* and the *Liverpool*—made trips across the Atlantic under the management of the Transatlantic Steamship Company, of Liverpool, and the success of these runs led to the establishment of a regular service. The following year the great Cunard Company was organized as the third British transatlantic steamship company. It put three steamships in operation in 1840, and its able management, aided by the government's strong support, soon gave it a leadership of all the British companies, a rank which it retained upon the Atlantic for many years.

The early steamers were wooden vessels propelled by paddle wheels. The gross tonnage of the *Liverpool* was 1,150, of the *Great Western,* 1,340 tons, and the average gross tonnage of the first four Cunard steamers (launched in 1840) was 1,139 tons each. The ships were a little over 200 feet long, and were of about 35 feet beam. They had an average speed of 8 to 10 knots an hour, and under favorable conditions took about two weeks to make the passage from port to port. Frequently three weeks were required for the trip westward. The engines were all of the side-lever type described below; those of the *Liverpool* had an indicated horse power of 468, those of the *Great Western* 750 horse power, and the Cunarders 740. A comparison of these figures with the data given later of the measurement, speed and engine power of the large liners of the present day will show clearly the progress that has taken place in marine architecture.

The general substitution of the screw propeller in place of paddle wheels came later than might have been expected. In 1836, John Ericsson, who subsequently achieved great fame and revolutionized naval architecture by building the *Monitor,* and Francis P. Smith, an English farmer working independently, each successfully applied the screw to the propulsion of ships; and in 1839, Smith's little ship, the *Archimedes,* of 237 tons burden and 80 horse power, made a most favorable impression, and led to the adoption of the screw on several small naval vessels, and on the large iron merchant ship, the

Great Britain, then building. Naval architects welcomed the screw because it was placed below the water line, and was not exposed to the fire of the enemy, as were the huge paddle wheels.

Most builders of merchant vessels continued to prefer paddle wheels until after 1850. Before that date the side-wheel steamers made better speed than the screw steamers did. This was due partly to the designs of the early screws, and also to the fact that the marine engines had been designed with reference to driving paddle wheels. The screw propeller necessitated a differently constructed engine, which builders required some time to design and supply. The *Great Britain,* the first large transatlantic ship to use the screw, began running in 1844. Numerous small steamers both in the United States and Europe were constructed with screw propellers before 1850; but it was at a later date that the managers of the large ocean lines became convinced that the screw was preferable to the paddle wheels. The famous Collins Line, in the United States, ordered four large expensive mail steamers in 1848, and put them into service in 1850, but they were of wooden construction and had paddle wheels. The Inman Line, of Liverpool, founded in 1850, began operating screw steamers of iron construction at the close of that year, and the Allan Line began running ships of like character in 1854. The conservative Cunard Company put the first screw steamer, the *Persia,* into the Atlantic service in 1862, during which year the company built their last paddle-wheel ocean liner. The famous *Great Eastern,* completed in 1859, was provided with paddle wheels and a screw and six masts.

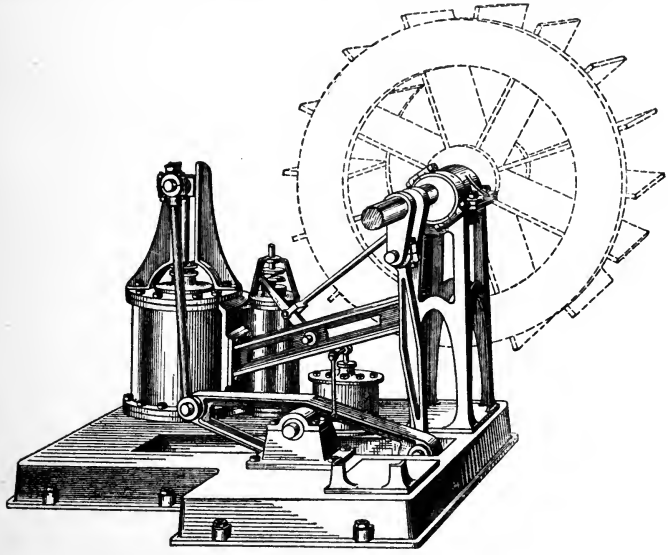
It was 23 years after the construction of the *Archimedes* before the paddle wheels were finally abandoned in favor of the screw by the builders of ocean liners. American companies were slower in adopting the screw propeller than the British companies. This, doubtless, was due in part to the adherence in America to wooden hulls until after the British builders had adopted iron construction.

The use of twin screws instead of a single propeller dates

from about 1880, and naturally began with war vessels. The merchant vessels in use before 1880 were not large enough to warrant the installation of two sets of engines. War ships, being built with reference to speed, safety and certainty of control, found the twin screw of special advantage. The first twin-screw merchant vessel in the transatlantic trade, the *Notting Hill,* began running in 1881. The *City of New York,* placed in service in 1888 by the Inman Line, was the first of the large ocean liners to use twin screws; but since that date all large passenger steamers have had at least two propellers, and some of the very largest recently constructed are equipped with three and four.

Evolution of Marine Steam Engines

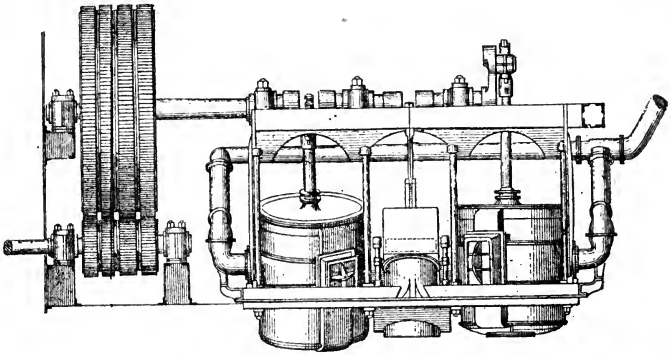
The most important phase of the technical history of ocean transportation is the evolution of the marine engine. The power that can be economically generated within the ship limits the size and the speed of ocean carriers. The *Great Eastern* proved a failure for various reasons, but mainly because her



Side Lever Type of Marine Engine

engines were unable to supply the power needed. Today vessels as large as the *Great Eastern* are profitably run at double the speed that steamer could maintain.

In adapting the steam engine to the work of propelling ships, numerous types of engines were constructed, but only the more important ones need be considered in this chapter. The engine most used for driving paddle wheels was the side-lever type, shown in the illustration. The cylinder was placed



Oscillating Geared Engine

upright, and the lever or beam connecting the piston rod with the rod attached to the crank shaft of the paddle wheels was placed at the side of the cylinder. The overhead beam engine so frequently seen on side-wheel ferry boats and river and sound steamers was not employed on ocean vessels, because it tended to make the ship top-heavy.

The side-lever engines constructed at the beginning, about 1840, had cylinders 60 to 72 inches in diameter, a piston speed of 170 to 190 feet per minute, and were supplied with steam from boilers carrying pressures of only 10 or 12 pounds per square inch. The indicated horse power was from 400 to 750, and the speed was from 7 to 9 knots per hour. The first engines had surface condensers, as engines now do, but from 1840 until 1860 the jet condensers were preferred, although they had the disadvantage of introducing salt water into the boilers. With boiler pressures of more than 35 pounds the

jet condenser cannot be used, because the heat of the steam causes the boiler to become coated with sulphate of lime.

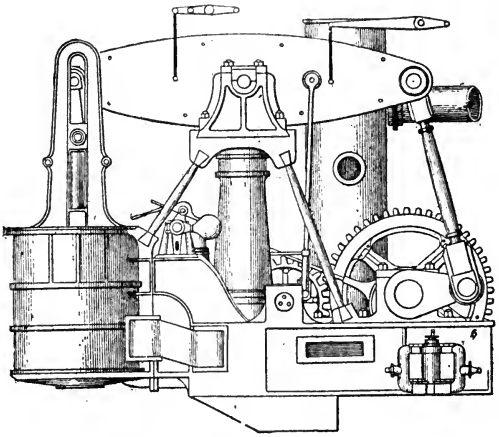
The last large ocean vessel to be fitted with side-lever engines was the *Scotia,* in 1862, of the Cunard Line, which had boilers carrying a pressure of 25 pounds per square inch. The huge cylinders were 8 feet 4½ inches in diameter, had a piston stroke of 12 feet, a piston speed of 360 feet per minute, an indicated horse power of 4,000, and gave a vessel speed of 13½ knots per hour.

During the period of transition from side wheels to the screw propeller, engines with oscillating cylinders were installed in numerous ships. The piston of the cylinder was attached directly to the crank shaft, without a lever or connecting rod. Engines of this type were installed in the *Adriatic,* of the Collins Line, in the *Great Eastern,* both in 1858, and in other vessels. The oscillating engines were successfully applied to driving paddle wheels and screw propellers, but, when used to drive a screw, gearing was necessary to secure the requisite speed for the propeller shaft, which needed to revolve from three to six times as fast as paddle wheels.

The engines constructed for screw steamers were of two general types, geared and direct-acting. Between 1850 and 1860 the geared engine was more frequently used, mainly because the boilers as then constructed had such a low pressure that the piston speed could not be made high enough to drive the screw as rapidly as was required without gearing. The geared engine was made in various designs. The arrangement of a "beam" engine of 1855 is indicated in the illustration.

The marine steam engine now universally used is the inverted direct-acting, in which the cylinders are placed inverted above the screw shaft, with the cranks of which the connecting rods from the pistons are directly attached. The first Atlantic steamer to have an engine of this type was the *Canadian,* of the Allan Line, in 1854. After this date the direct-acting engine was gradually adopted, but it was given several other designs than the inverted. Many steamers placed the cylinders horizontally at right angles to, and on a level with, the pro-

peller shaft. These were called trunk engines, because the piston was large and hollow and had the connecting rod attached to the center of the hollow trunk. In another arrangement the

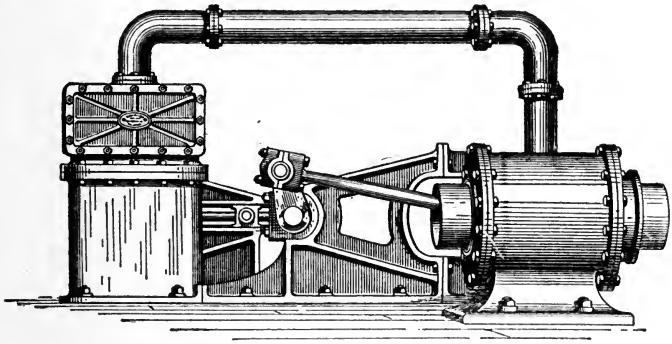


Geared Beam Engine

cylinders were placed upright, the piston acted upward and was attached by a long return connecting rod with the shaft placed either above or below the cylinders. Another device was the inverted diagonal arrangement of cylinders. A popular engine was one combining both horizontal trunk and inverted engines acting upon the same shaft. It was not until after 1870 that the inverted direct-acting engine came to be exclusively used, and it then supplanted the other designs, because it was the best arrangement for the cylinders of the compound engine.

The compound engine was successfully used in 1854 on the Pacific steamship *Brandon*, whose boilers carried a pressure of 42 pounds. However, the compound engine did not make much headway until 1870, by which time a boiler pressure of 50 pounds to the square inch was not considered extraordinary. The steamship *Holland*, 1870, was the first vessel to adopt a compound engine for the transatlantic trade. Its boiler pressure was 60 pounds.

In the arrangement of the cylinders and cranks of the compound engine various designs were followed; but with the exception of the gradual improvements in boiler construction whereby the steam pressure was raised to 90 and 100 pounds, there was no change that requires notice here made in the marine engine before 1881, when the triple-expansion engine made its appearance in the Australian liner *Aberdeen*. In 1884, the Wilson Line steamer, the *Martello*, inaugurated the use of the triple-expansion engine in the Atlantic service. Other vessels with similar engines soon followed.

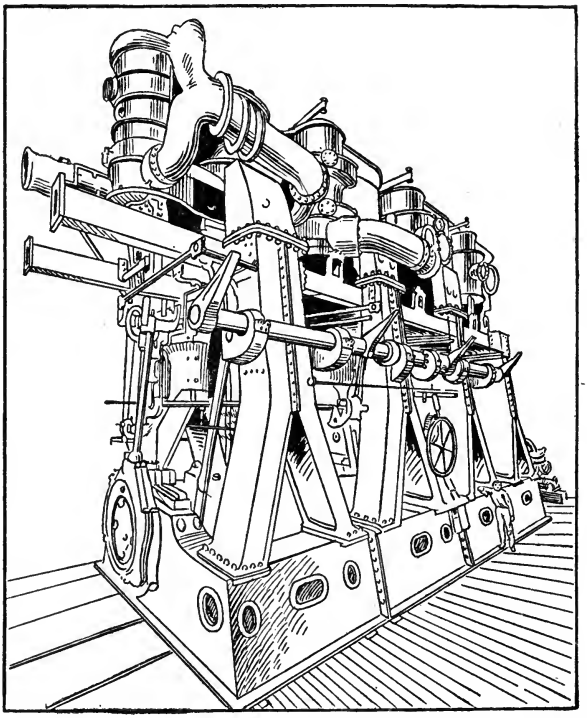


Trunk Engine

The quadruple-expansion engine dates from 1894, when the American Line ships, the *St. Louis* and the *St. Paul*, were put into service. The efficiency and economy obtained from quadruple expansion are somewhat greater than can be secured from triple expansion, but the adoption of quadruple engines does not mark an especially important step forward.

Eighty years of development have brought the reciprocating marine engine to high efficiency, but a radically different type of engine, the turbine, has also been successfully used on ocean-going vessels, both merchant and naval. There are two general types of steam turbines. one, invented in 1883 by De Laval, in Sweden, and another in 1884, by Parsons, in England. Since their invention both kinds of turbines have undergone

steady improvement, and both may be expected to be given greater efficiency as the result of future inventions. The description of the steam turbine engine contained in the Census



Quadruple-Expansion Inverted Direct-Acting Marine Engine

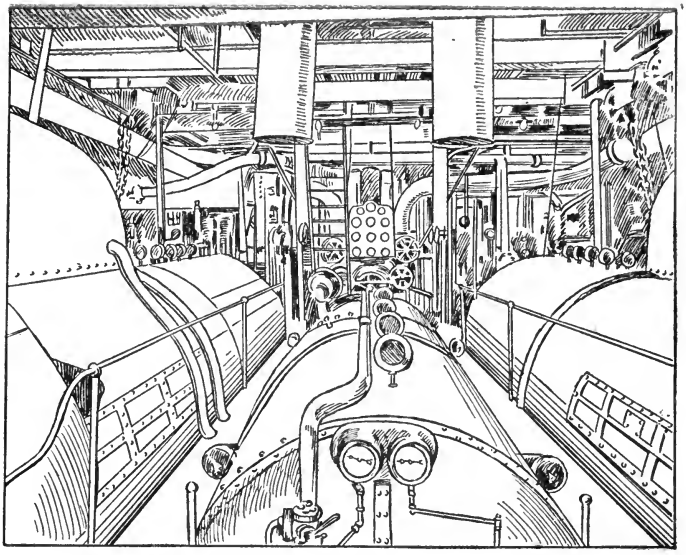
volume published in 1902 (vol. X, part iv, p. 397) is clear and concise, and may well be reproduced here:

In both the De Laval and Parsons steam turbines power is generated by the impact of a jet of steam upon buckets on the periphery of a revolving disk. The essential differences between the two types of motors are these: The De Laval turbine has a single disk, with several steam jets or nozzles. The nozzle has a divergent aperture in which the expansion of the steam takes place. The single turbine disk revolves at a high rate of speed,

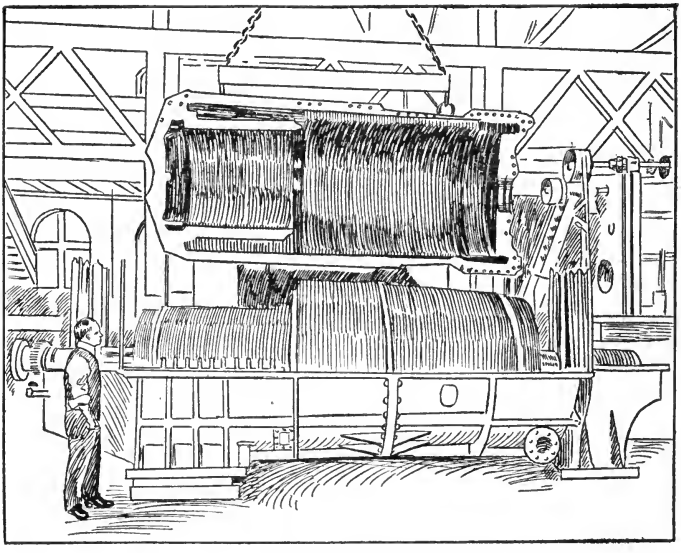
say from 10,000 to 30,000 revolutions per minute, according to the size of the motor, this speed being reduced to about one-tenth on the main shaft by means of accurately cut spiral gears. The Parsons type of turbine, on the other hand, has a series of disks mounted upon a common shaft, and alternating with spiral blades fixed within the casing of the shaft. There are buckets, or cups, upon both the revolving disks and the fixed blades, the fixed buckets being reversed in relation to the moving cups. The steam, admitted first through a set of stationary blades or buckets, impinges at an angle upon the first rotating disk and imparts motion, passing thence through another set of fixed blades to the second disk upon the main shaft, and thus through the entire series of alternately fixed and rotating buckets. The area of the passages increases progressively to correspond with the expansion of the steam as it is used on the successive disks. The expansion of the steam is accomplished in the turbine itself, instead of in the nozzles, as in the De Laval motor. There is but a single shaft, instead of the two in the De Laval type, and the buckets in a given size of Parsons turbine number about 30,000, as against about 350 in a De Laval motor of the same size.

Whether the same amount of power can be secured more economically by means of the turbine than by means of the reciprocating engine is apparently not fully established, although greater economy is claimed for the turbine; but the turbine has certain advantages, other than power efficiency, that are valuable. The turbine engine being much more compact than the reciprocating, occupies less space and weighs less. The friction of its moving parts is less, and it is without the vibration which the reciprocating engine has. These advantages of the turbine give it special merits as a marine engine, in which economy of space and weight and reduction of vibration to a minimum are important considerations.

Some of the largest passenger liners recently constructed or under construction have been fitted with turbine engines. The Hamburg-American liners *Bismarck* and *Vaterland* are equipped with turbines. Other extremely large vessels, such as the *Britannic*, of the White Star Line, have been equipped with both reciprocating and turbine engines. The *Britannic*,



Turbines in the *Governor Cobb*, Looking Forward in the Engine Room



One of the Turbines of the *Governor Cobb*

which was lost during the European War, had engines typical of a large modern steamer. The company's description of these engines was as follows:

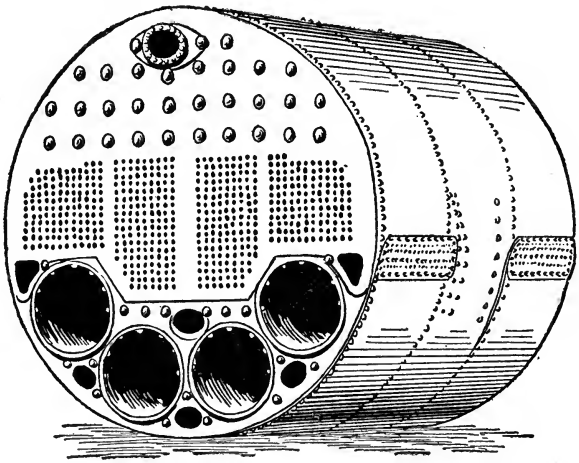
The three propeller shafts are operated by combination machinery consisting of two sets of 4-cylinder triple expansion reciprocating engines operating the wing shafts, and a low pressure turbine of the Parsons type driving the center shaft. The steam after passing through the successive cylinders of the reciprocating engine, flows normally into the turbine, and although the pressure at entrance is only about 10 lbs. absolute as compared with about 200 lbs. at the reciprocating engines, the exhaust turbine enables the whole of the energy in the exhaust steam to be utilized before it passes to the condenser. Thus the turbine, notwithstanding the low initial steam pressure, develops about 18,000 h.p., which is slightly more than the power developed by each of the two reciprocating engines. The result is very much higher economy than is possible with the reciprocating engines only.

Marine Boilers

Several references have already been made to the boilers of marine engines, and to the limitations which the low pressure of the early boilers placed upon the improvement of the engine. The power is applied in the cylinder, but as the power is generated in the boilers, they determine the amount of available energy. In the flat-sided, box-shaped boilers used before the introduction of the cylindrical boiler with internal furnaces in 1868, high pressure was impossible. Accordingly, from 1840 to 1860 most marine engines were designed with reference to a steam pressure of 30 pounds or less to the square inch. The cylinders were of large diameter and the piston speed slow. When the introduction of the screw called for increased piston speed, and the invention of the compound engine also made higher steam pressure necessary, the boiler was so designed as to carry higher pressure and to provide greater heating surface.

The circular boilers used from 1870 to 1880 permitted the pressure to be raised to 100 pounds by 1880. When the intro-

duction of triple-expansion engines caused a demand for higher pressure, the corrugated furnace now used was adopted. The cylindrical boiler, with three internal corrugated furnaces and with return horizontal tubes, is the one now quite generally used on merchant steamers. Steam pressures of 200



Marine Boiler

to 225 pounds are customary. On naval vessels a different type of boiler, having water tubes surrounded by fire, has been used to a large extent. The water-tube boiler is more efficient, but is more expensive to construct and to maintain; and its use has thus far been confined mainly to war vessels, where cost is a minor consideration.

The largest ocean liners are equipped with many boilers and furnaces, and numerous boiler rooms. The *Britannic* had 29 boilers and 159 furnaces distributed in six boiler rooms separated by water-tight bulkheads and by coal bunkers athwart the ship between the two inner skins, and up to a level far above the load water line.

Evolution of Steamship Hulls

The third phase of the technical history of the modern steamship is concerned with the hull. The lines to be fol-

lowed in constructing a hull to secure seaworthiness and speed were worked out by the builders of sailing vessels during the first half of the nineteenth century, and when the construction of steamships began, about 1840, there were no important changes necessary in the design of the hull.

The first steamships had wooden hulls; and, as was true of the substitution of the screw for the paddle wheel, the change from wooden to iron vessels was brought about slowly. The first ocean-going iron vessel was the *Rainbow*, a little paddle-wheel ship of 580 tons and 180 horse power, built at Liverpool in 1837-38. The vessel that did most to bring the iron hull into favor was the *Great Britain*, a ship phenomenally large for its time, of 3,270 tons gross, built in 1839-44. The hull was divided into six water-tight compartments, and was so strongly built that it lay stranded on the Irish coast, without serious damage, for 11 months in 1846 and 1847. The vessel was kept in service on various routes for nearly 40 years.

Several causes delayed the general adoption of iron hulls. Until 1860 the people of the United States led Great Britain and other countries in the tonnage of shipping annually constructed, and as wood was abundant and iron was expensive in the United States, American builders adhered to wooden construction much longer than other countries did. The British Government, always conservative, did not favor iron hulls for its navy until after 1850. Until 1852 the British mails could be carried only in wooden ships. Some of the large English steamship companies preferred wooden ships as late as 1860. The Cunard Company built its first iron ship for the Atlantic service in 1856.

The construction of iron ships made steady though not rapid headway in Great Britain during the decade of 1850-60. Thirty per cent of the British tonnage was iron in 1860, and after that date but a small wooden tonnage was launched. At the present time over 99 per cent of the tonnage of ocean shipping of the United Kingdom is of iron or steel construction. In the United States, on the contrary, the construction

of iron ships made but little headway until after 1870, and since then the change from wood to iron has been so slow that over 35 per cent of the documented tonnage under the American flag remains of wooden vessels. It can, however, only be a question of time when wood must give way to metal in shipbuilding, because of the superiority of iron and steel ships.

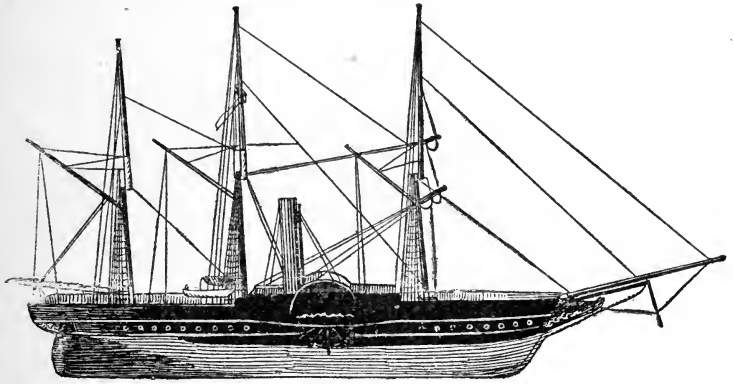
The first change in the material used in the construction of hulls was from wood to iron; the second, was from iron to steel. British builders began to use steel shortly before 1880; and in 1886 the tonnage of steel ships constructed exceeded the figures for iron. Since 1886 the total tonnage and annual construction of iron ships in the United Kingdom has steadily declined; while the figures for steel vessels have risen, until at the present time, 1916, 97 per cent of the total shipping of that country consists of steel vessels. Steel has now almost displaced iron in the construction of hulls in the shipyards of all countries, and as existing iron ships wear out, their places are taken by steel vessels.

The hull of the modern steamer is divided by bulkheads into water-tight compartments, and is constructed with a double bottom within which water ballast may be carried. The ship carries dynamos, machinery for making ice, for handling cargo, for steering the vessel, and for many other purposes. Almost every year sees some new equipment added to the fitting of the already highly complex and efficient ocean carrier.

The technical progress made in the construction of American ocean vessels can be stated most satisfactorily by a brief description of the *Minnesota*, constructed at New London, Conn., and completed in 1905. This vessel was built for the Great Northern Steamship Company to carry freight and passengers between Puget Sound ports and transpacific countries, but it was purchased by the Atlantic Transport Line in 1917, and was then placed in the transatlantic trade. The *Minnesota* and her sister ship, the *Dakota*, which was wrecked, were the largest merchant ships that had been built in Amer-

ica. The gross tonnage of the *Minnesota* is 20,718 and its net 13,324 tons; it is 622 feet in length over all, 73 feet 5 inches beam, and 56 feet in depth from the keel to the upper deck amidships. Although intended mainly for the transportation of freight, the *Minnesota* is provided with accommodations for 250 cabin, 68 second-class, and 1,500 steerage passengers. The hull is constructed with 32 water-tight compartments, and there are nine decks.

Since the construction of the *Minnesota*, which in 1917 was still the largest merchant vessel under the flag of the United States, foreign steamship lines—particularly those operating across the north Atlantic route—have made great progress. In contrast with the first steamship of the Cunard Line, the *Britannia*, which registered 1,156 tons gross, had engines of 740 horsepower, and was 207 feet long and 34 feet wide; that company, in 1908, began operating the *Mauretania*,[1] which registers 32,500 tons gross, 28 times the tonnage of her early ancestor; her length is 790 feet, and she is 88 feet in breadth. She has a speed of over 25 knots an hour, and her turbine engines develop 68,000 horsepower, 92 times the power of the



S. S. *Britannia*

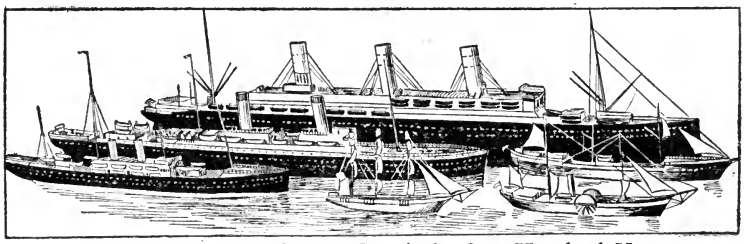
Britannia. In 1913 the same company launched the *Aquitania*, which registers 45,647 tons gross, is 868 feet 7 inches

[1] Her sister ship, the *Lusitania*, which also began operation in 1908, was destroyed by a German submarine May 7, 1915.

in length, has accommodations for 3,250 passengers, and a crew of 1,000.

The White Star Line has even larger vessels than the Cunard Company. In 1910 it launched the *Olympic*,[1] which is 852 feet 5 inches long, and has a gross register tonnage of 46,359 tons. In 1914 this company launched the *Britannic*, which also was 852 feet 5 inches, but registered 47,500 tons gross. This vessel had nine decks, on six of which accommodation was provided for 2,600 passengers.

The Hamburg-American Line owns several vessels which are even larger than those of its British rivals. In 1912 it launched the *Imperator*, which registers 51,969 tons gross, and has a length of 882 feet 9 inches, 11 decks, accommodations for 4,000 passengers, and a crew of 1,100. In 1913 it launched the *Vaterland*, which registers 54,282 tons gross, is 907 feet 6 inches long, and is manned by a crew of 1,234 men; and in 1914 it launched the *Bismarck*, which is 912 feet long and registers 56,000 tons gross. The *Bismarck* is the largest vessel yet constructed. A composite view of the progress which has been made in ship construction during the past century may be had from the following drawing of the recent



Growth of Size of Ocean Vessels in One Hundred Years

The smallest vessel in the group is the *Dreadnaught*, a clipper ship dating from the beginning of the nineteenth century. Then follow the *Borussia*, a side wheeler; the *Britannia*, *Arizona*, *Oceanic*, first greyhounds, and the *Vaterland*.

exhibit of the United States War Department at the Panama Pacific Exposition.

[1] Her sister ship, the *Titanic*, which was launched in 1911, struck an iceberg and sank April 14, 1912.

REFERENCES

See references under Chapter III, pp. 46, 47.

CHAPTER III

THE CLASSIFICATION OF STEAMERS BY STRUCTURE AND SERVICE

Steamships grouped by service, 35. Express liners, 35. Combination liners, 35. Cargo liners, 36. Cargo steamers or tramps, 36. Steamships grouped by deck arrangements, 36. Two-deck cargo vessels, 37. Three-deckers, 39. Spar-deck vessels, 39. Awning-deck vessels, 39. Shelter-deck vessels, 39. Four-deckers and larger vessels, 39. Shade-deck vessels, 41. Turret vessels, 42. Trunk steamers, 42. Whale-back steamers, 42. Self-trimming vessels, 43. Tank steamers, 43. Steam schooners, 44. References, 46.

SEAGOING steamships may be classified in various ways. They may be grouped according to the manner in which their power of propulsion is applied; according to the kind of engines with which they are equipped; according to the kind of material used in the construction of their hulls; and according to the manner in which they are equipped for the conduct of their services.

STEAMSHIPS GROUPED BY SERVICE

The last of these methods of classifying steamships practically results in grouping them according to their uses or the kind of service which they perform. It is a common practice, from this standpoint, to group ocean steamships as follows: (1) Mail and passenger steamships or "express liners," which have but a relatively small cargo space, and carry mainly passengers, mail, express goods and high-class freight; and (2) passenger and cargo steamships or "combination liners," which have a relatively larger cargo space and, in addition to the passengers, mail, express goods and high-class freight on board, endeavor also to carry much bulky freight, such as grain, cotton, iron and steel goods and foodstuffs. The distinction between these two types of vessels is not always clear, but the two together comprise the world's deep-

sea passenger carrying steamers, and, as compared with other vessels on a given route, are known for their speed, size, beauty, luxurious equipment and the regularity with which they operate on fixed routes and schedules. (3) Fast cargo steamships or "cargo liners" are vessels which carry cargo exclusively, but nevertheless operate over definite routes on fixed schedules. They are adapted to the carriage of the many different kinds of freight which move over their routes in less than ship-load lots, are frequently built for the particular trade in which they engage, and include many of the world's best built, fastest and most efficiently operated freighters. (4) Ordinary cargo steamers or "tramps" include the great number of freighters which, acting as common carriers, transport a large share of the world's low-grade bulky freight—especially that which moves in ship-load lots. "They are boats of full form, rarely exceeding 375 feet in length, of a speed varying from 8 to 10 knots and ready to go anywhere to pick up any sort of cargo." [1] (5) In addition to the passenger or general cargo carrying steamships mentioned above, there are numerous specialized steamships, i.e., vessels constructed and used largely for the transportation of some special kind of freight. Many of the steamers used to transport oil, iron ore, coal and lumber, for example, constitute distinct types of craft. Many of these vessels are owned and operated by large industrial concerns, directly in connection with their respective industries.[2]

Steamships Grouped by Deck Arrangements

Steamships may also be classified according to the number and arrangement of their decks and their above-deck or superstructures.

Small freight vessels have two decks, medium-sized freight and passenger ships have three decks, while larger freight vessels and

[1] National Foreign Trade Council, *Ocean Shipping*, 10 (2d ed., March, 1917).

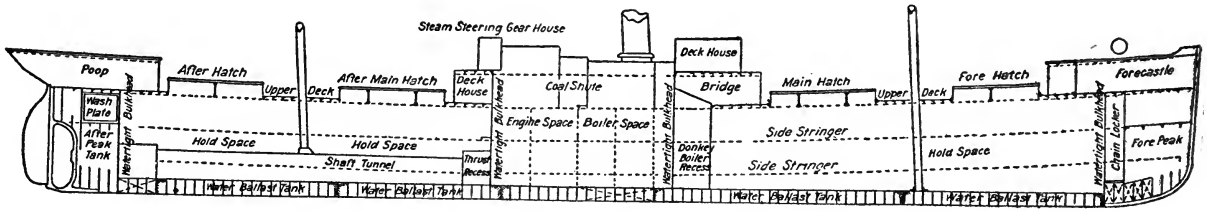
[2] See pp. 152, 275.

those carrying both freight and passengers usually have four (or more) full decks, above which there may be one or more decks extending less than the full length of the vessel and inclosing successive tiers of superstructures. In vessels having more than one deck, the main deck is the second deck from the bottom of the vessel. When there are three decks they are designated lower, main (or middle), and upper deck. If there are four full decks, the fourth deck is generally called the shelter deck, above which there may be a bridge deck, and a promenade deck, or bridge, promenade, and boat decks. The decks above the shelter deck do not extend the full length of the hull.[1]

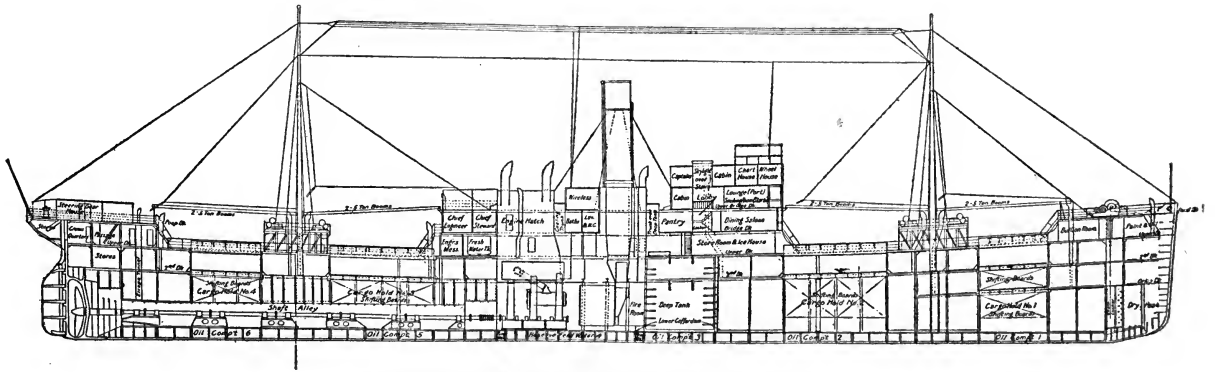
In practice one or more decks may be omitted in a vessel without affecting its classification as a two-, three-, or four-decked vessel. Its classification depends upon whether or not the space between the decks actually constructed is sufficiently wide to come within the requirements of Lloyd's or other recognized marine underwriting associations, i.e., whether it has the equivalent of two, three or four, or other stated number of full-length decks.

Among the simplest of seagoing steamships are the relatively small two-decked cargo vessels which have two full-length decks, a lower and main deck, above which the three most usual superstructures—the forecastle, bridge, and poop—are placed. In many instances, however, the main deck from abaft the bridge to the stern is raised four or five feet, so as to increase the capacity of the after cargo hold and prevent the loaded vessel from trimming to the bow. Such a vessel is known as a "raised quarter-decker." The bridge, moreover, is often extended and brought nearer to the forecastle, thus creating a so-called "well" between the bridge and forecastle, which in case of heavy weather is awash. Vessels of this type are commonly known as "well-decked steamers." (See illustration, p. 38.) When the main deck forward of the bridge is raised so as to increase the freeboard and reduce the shipping of water, the vessel is called a "raised forecdecker."

[1] E. R. Johnson, *Measurement of Vessels for the Panama Canal*, 15.



Profile of a Two-Deck Well-Decked Steamer



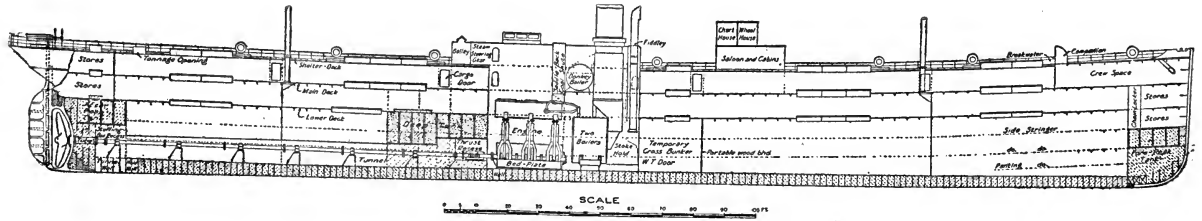
Profile of a Three-Deck Freight Steamer

Larger steamers are fitted with three full-length decks, above which there may be any number of superstructures and part length or partial decks. When the frames of a three-decked vessel are carried full sized to the upper deck, which is the strength deck, it is known as a "three-decker." (See illustration, p. 38.) When the frames are made somewhat lighter between its middle and upper deck and the upper deck is of lighter construction, the vessel is a "spar-deck vessel"; and when the construction above the middle deck is still lighter, and the middle deck is the strength deck, the vessel is known as an "awning-deck vessel." [1] Should the upper deck of a three-decked vessel be fitted with a small so-called "tonnage opening," as is shown in the illustration on page 40, the opening being placed there to meet the requirements of the vessel measurement rules of Great Britain, the steamer would be known as a three-decked "shelter-deck vessel." The tonnage opening is provided for the sole purpose of obtaining a low net register tonnage, and may be readily closed when at sea so as to permit of the stowage of dry cargo in the holds below the shelter deck.[2]

Large cargo liners and many express and combination liners have four full-length decks and, from the standpoint of deck arrangement, become four-deckers. The uppermost full-length deck, as in the case of three-deckers, may be of the shelter-deck type. In fact, the fourth deck of large vessels is frequently called the shelter deck even when not fitted with a tonnage opening; but in the absence of such an opening the term is a misnomer. Four-decked vessels, especially when engaged in the passenger service, may be fitted with various part-length decks, such as the bridge, promenade and boat decks.

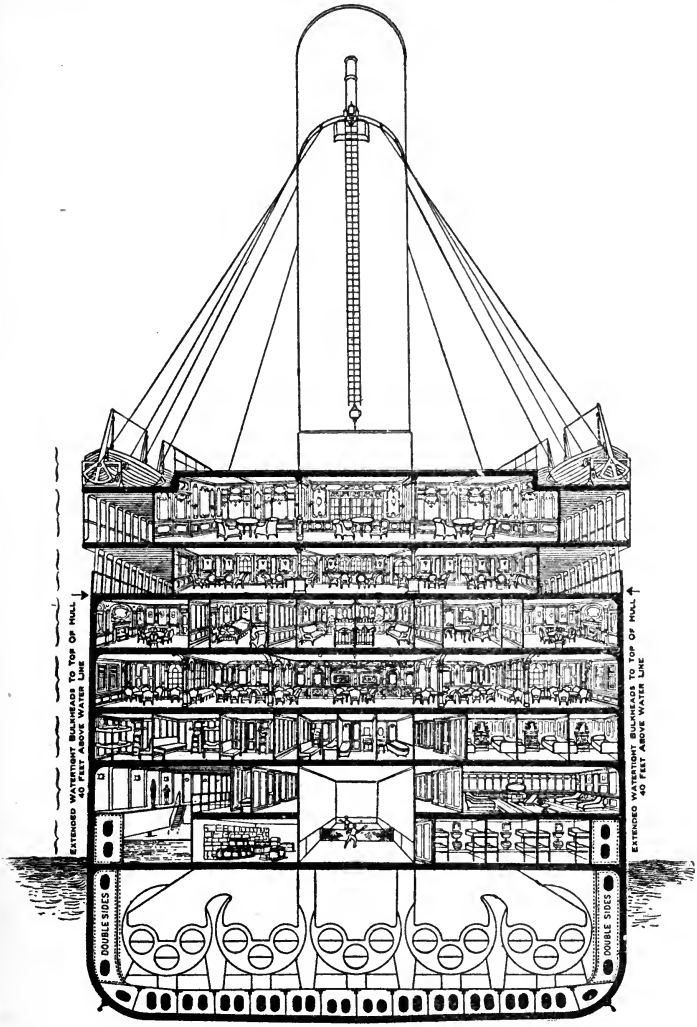
Large express and combination liners may have more than four full-length decks. The *Olympic*, for example, has nine full-length decks which are shown in the illustration on p. 41, and in addition a part-length "sun" or boat deck.

[1] E. R. Johnson, *Measurement of Vessels for the Panama Canal*, 20.
[2] *Ibid.*



Profile of a Steamer Having Lower, Main and Shelter Decks

Passenger steamers are sometimes fitted with a so-called "shade deck" or lightly constructed covering over the uppermost deck to afford shelter and to provide a promenade for passengers. Such a deck is ordinarily constructed with light


EXTENDED WATERTIGHT BULKHEADS TO TOP OF HULL
40 FEET ABOVE WATER LINE
DOUBLE SIDES
EXTENDED WATERTIGHT BULKHEADS TO TOP OF HULL
40 FEET ABOVE WATER LINE
DOUBLE SIDES

Sectional View of S. S. *Olympic* (Amidship)

deck beams supported on round iron stanchions, framed angle- or tee-bars; and the sides of the spaces under it may be entirely open fore and aft, or they may be partly closed in.

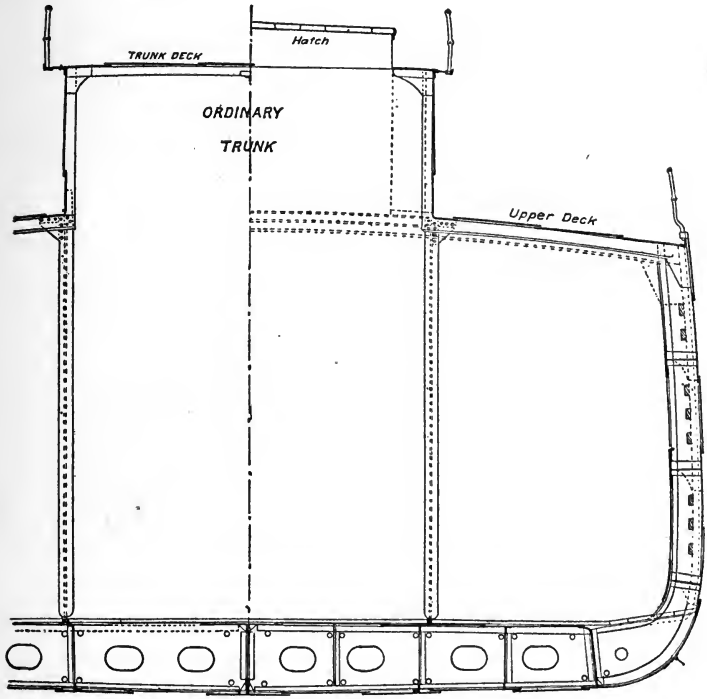
Numerous types of ocean-going cargo vessels have been designed for the transportation of special kinds of cargo or to accomplish some special purpose. A "turret" vessel, for example, is fitted with a narrow "turret deck" and a rounded "harbor deck," the main purpose of the unusual deck construction being to evade the measurement rules of Great Britain. These vessels are used chiefly in the transportation of bulk cargoes of grain, lumber and ore or cargoes of heavy bales and packages and miscellaneous weight freight. Some of them are "self-trimming" vessels with unobstructed holds extending all the way from the collision bulkhead to the boiler room bulkhead. Since the British measurement rules have been adjusted so as to counteract the tonnage-evading purpose of turret vessels, the construction of such vessels has been discontinued. (See illustration, p. 44.)

"Trunk steamers" are also designed to transport dead-weight and bulk cargoes, their holds being clear except for widely spaced pillars. They derive their name from the trunk erection, which is about seven feet high and half the width of the upper deck on which it is located. (See illustration, p. 43.)

"Whaleback" steamers, which are used chiefly for the carriage of grain and coal, aim to provide absolutely clear decks without deck erections and a rounded form which breaks the force of the sea. They are relatively few in number, however, because it was found that it is difficult for the crew to man such an upper deck in heavy seas, that the hatchways without combings interfere with feeding the holds with bulk cargoes, and that the shape of the whaleback steamer's bow and bottom "makes the hull especially liable to damage when the vessel is pitching in a seaway, owing to the pounding action produced as the vessel thumps against head seas." [1]

[1] James Walton, *Present-Day Shipbuilding*, 69; Johnson, *Measurement of Vessels for the Panama Canal*, 26, 27.

Vessels need not be fitted with trunks or turrets in order to be self-trimming. The principles of a clear hold without

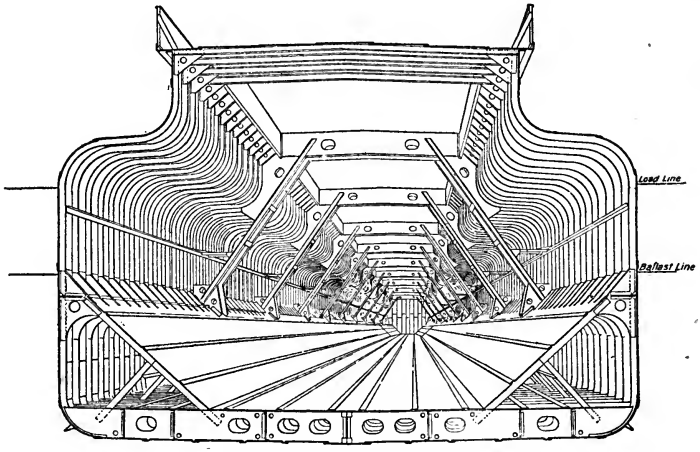


Midship Section of Trunk Steamer

a lower deck, lower deck beams, pillars, or other hold obstructions, and with arrangements to facilitate the trimming of bulk freight may be applied to cargo vessels which have their walls carried to the upper deck in an unbroken line.

For the transportation of petroleum and sometimes other oils in bulk, special "tank steamers" have been constructed. The portions of the vessel used for the stowage of the oil are subdivided into small tanks by a strong longitudinal bulkhead extending the entire length of the ship above the center line of the vessel and rising to the uppermost deck, and by

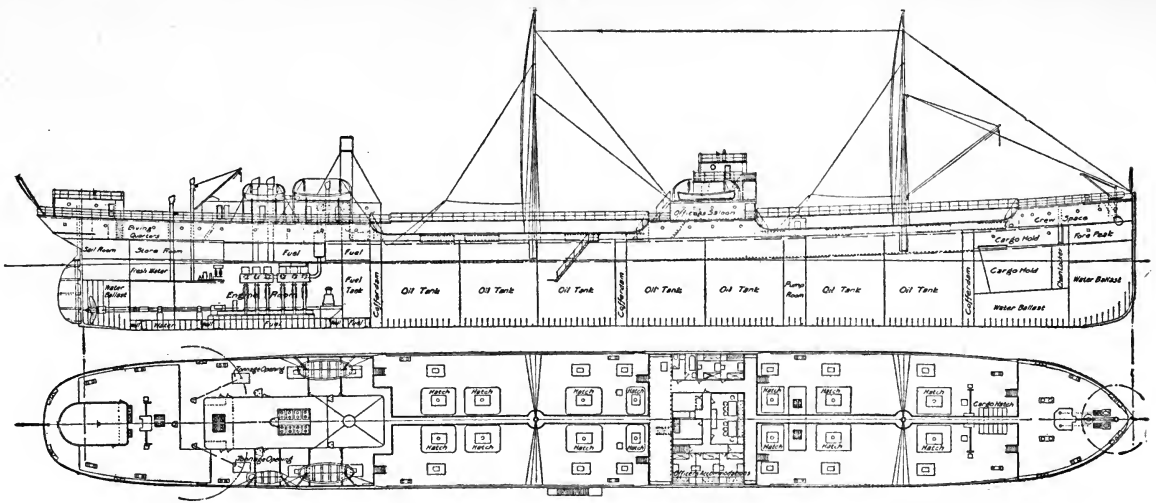
transverse bulkheads spaced about 24 feet apart. When these tanks are filled with oil the fore-and-aft and side-to-side movement of the oil caused by the pitching and rolling of the vessel at sea is reduced to a minimum. To provide for the expansion of oil due to increase in temperature and to prevent explosion due to the forming of gases, each tank is



Hold View of Self-Trimming Turret Steamer

also fitted with an expansion trunk. As is shown in the illustration on page 45, some tank vessels are very large, having numerous deep oil tanks, additional "summer tanks" between the main and after decks for the stowage of oil during the warmer seasons, and a cargo hold as well as additional spaces below the "shelter deck" for the transportation of miscellaneous freight cargoes other than oil.

A special type of bulk-cargo vessels, known as the "steam schooner," has also been developed in the lumber trade of the Pacific coast of the United States. Although these vessels were originally the outgrowth of lumber schooners, the modern steam schooner depends wholly upon its engines. Their general structure, however, resembles that of sailing schooners. They have a greater proportionate beam than the ordinary steamer, high free board, great sheer forward, and



Profile and Upper Deck Plan of Oil Tank Carrier, with Diesel Engines

a long unobstructed deck space between the forecastle and the bridge, which is located far aft. Large quantities of lumber are frequently carried on this open deck space as "deck loads." Although the steam schooner shown in the accompanying illustration has a gross tonnage of but 1,600 tons, a length of 235 feet, and but one full-length deck, it is able to transport 1,500,000 feet of lumber within its hold and on the open deck.

As has been the case with railroad equipment, ocean-going vessels have had to adapt themselves alike to the requirements of commerce and travel, and to the technical inventions which have made improvement possible. Steamers and sailing vessels, in fact, do not include the entire list of sea-going craft. There is an increasing number of vessels equipped with internal-combustion engines, and there are also unrigged craft. These two classes of vessels will be described in the following chapter.

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CHAPTER IV

MOTOR VESSELS AND UNRIGGED CRAFT

Vessels with internal-combustion oil engines, 48. Diesel marine engines, 48. Vaporizer marine engines, 52. Vessels with internal-combustion gas engines, 52. Those operated with refined oils, 53. Those operated with producer gas, 53. Unrigged craft, 54. Inland and seagoing barges, 54. Tank barges, 56. Rafts, 56. References, 57.

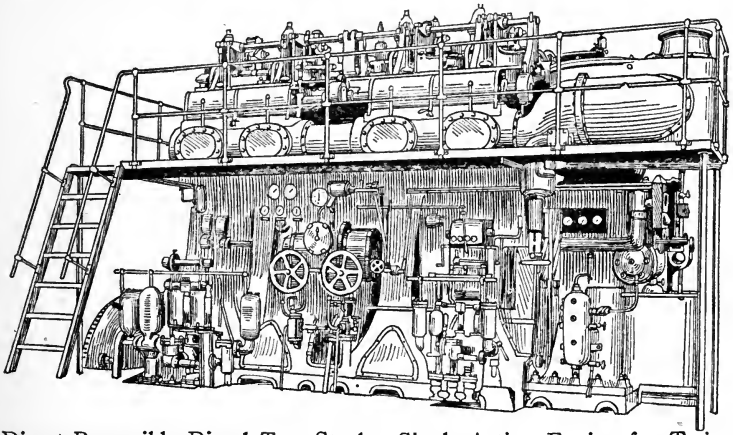
THOUGH the self-propelled vessels operating on the high seas are mainly equipped with steam engines, an increasing number have in recent years been fitted with internal-combustion engines. Indeed, but few technical improvements at present are receiving more current mention in maritime journals than those concerning motor vessels. These vessels may be grouped into two general classes: (1) those fitted with internal-combustion oil engines, and (2) those propelled with internal-combustion gas engines.

VESSELS WITH INTERNAL-COMBUSTION OIL ENGINES

The type of internal-combustion oil engine at present most widely in use is the Diesel engine which was invented by Dr. Rudolf Diesel, and first put into practical use in Germany in 1897. Thousands of stationary Diesel engines have been constructed and sold throughout the world since then, and considerable progress has been made in the introduction of Diesel marine engines. Since 1902-03, when the first Diesel marine engine was built, and particularly since 1905, when the first reversible engine of this type was constructed, many improvements have been made and numerous variations have been introduced by the several marine engine manufacturers who have undertaken their construction. In 1911 it was stated that 365 vessels were equipped with Diesel

engines,[1] and since then the number has doubtless risen above the 400 mark.

Diesel-engined vessels are not to be confused with oil-burning steamers, which merely substitute oil for coal as a means of generating steam in boilers. Diesel oil engines dispense with boilers, the oil being injected directly into the cylinders. Neither are they to be confused with gas motor vessels, the engines of which depend upon the explosion of gas made out of light oils or coal. Diesel oil engines depend upon the burning of oil in the cylinders. Crude petroleum, tar or creosote oils, the residual mineral oils which remain at the refineries after the lighter oils have been distilled, and a wide variety of other oils may be injected into the cylinders in the form of spray where it is ignited, not by an electric spark or other local ignition, but by the high temperature resulting from the compression of air in the



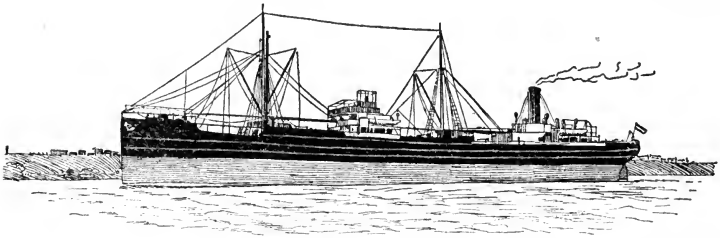
Direct-Reversible Diesel Two-Stroke, Single-Acting Engine for Twin-Screw Motor Vessel

cylinders. Air compressors are used to convert the oil into a spray and to start the engine, and cooling appliances are required to cool the cylinders, valves and piston bearings.

[1] R. Diesel, *Present Status of the Diesel Engine in Europe*, 27: Oil tank vessels 20, tugs 40, motor sailing vessels 10, merchant vessels 50 to 60, fishing vessels 15, submarines 140, other war ships 40, small marine craft 20, and miscellaneous craft 20.

Three principal types of Diesel marine engines have been developed: (1) The four-stroke cycle engine which requires four strokes of the piston to complete a cycle, the third being the working stroke. (2) The two-stroke single-acting engine which is equipped with a scavenger pump and is so constructed that two strokes complete a cycle, the second being the working stroke. (3) The two-cycle double-acting engine which differs from the single-acting engine chiefly in that each stroke is a working stroke, the cylinders being virtually double and the oil being injected alternately at each cylinder end. The four-stroke and two-stroke single-acting engines are at present in most general use, and the rivalry between the various firms which construct them is the best indication that their respective merits have not been finally determined.

The principal advantages claimed for Diesel marine oil engines as compared with marine steam engines are as follows: (1) They make possible a reduction in the size of



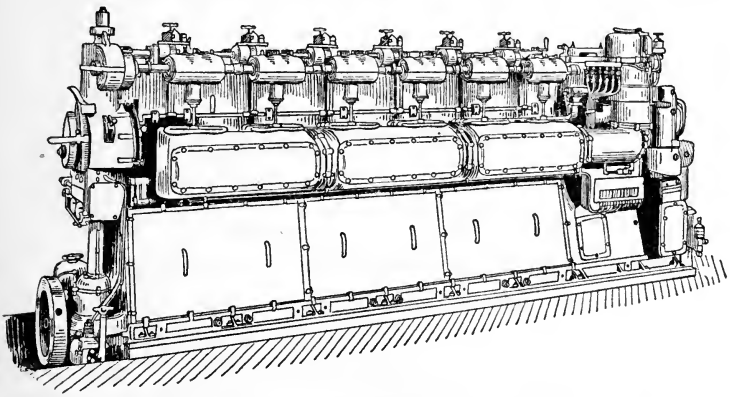
Twin-Screw Cargo Vessel *Monte Penedo*. Fitted with Two-Stroke Single-Acting Diesel Motors

the engine room, although the peculiar tonnage measurement rules of various maritime countries frequently induce vessel owners to forego this advantage.[1] (2) They result in the reduction of fuel spaces, for the oil they use is less in volume than is the coal required by a steamer of equivalent horse power, and the oil may be stored in compact tanks and in the vessel's double bottom instead of in large spaces in the hold, such as are required for coal bunkers. (3) They

[1] *See* chapter ix, pp. 120, 121; also Johnson, *Measurement of Vessels for the Panama Canal*, 153.

increase the vessel's deadweight capacity and available cargo space.[1] (4) On routes where oil is readily available, or where the scarcity of both oil and coal makes it advisable to take on large quantities of fuel at the starting point, the Diesel oil engine is relatively more economical. (5) Diesel engines may be started at any time and within a very short time, no extensive preparations being required to get up pressure and power.

Diesel marine oil engines have, however, had to contend with various obstacles, and their adoption in the future will at most be gradual. Just as in the early years of ocean steam navigation coaling stations had to be established throughout the world, so now fuel oil stations must be established on all the main ocean routes. Doubt that necessary quantities of serviceable oil are available at reasonable prices would especially deter ocean-going tramps from being generally equipped with Diesel engines, for they need to sail wherever a cargo awaits transportation. Then, too, the cardinal



Four-Stroke, Direct-Reversible Diesel Marine Engine

virtue of a marine engine—particularly in case of passenger vessels—is absolute reliability, and the maritime world needs to be convinced that the Diesel engine possesses this quality. The early difficulty concerning the reversing of Diesel engines

[1] For detailed statement see Johnson, *Ibid.*, 155-56.

seems to have been fully overcome, yet it should be recalled that the first steamship did not cross the Atlantic until nearly 30 years after the construction of the *Clermont*, and that screw propellers did not come into general use on the ocean until fully 20 years after their invention.

Thus far none of the very large ocean passenger liners which require great speed and large horse power has been equipped with Diesel engines. The number of large cargo liners and medium-sized combination freight and passenger liners fitted with Diesel engines is growing, but their special field in merchant shipping has been the ordinary cargo vessel.

An increasing number of vessels for carrying oil, some of large tonnage, and tugs, fishing boats, and miscellaneous small craft are also being equipped with Diesel engines, and they have been installed in a number of naval vessels, especially in submarines.

Various internal-combustion oil engines differing somewhat from Diesel marine engines have been invented. Such, for example, are the so-called vaporizer marine engines, which differ in that the oil is injected into their cylinders in the form of vapor and is ignited by electric bulbs, sparks, or other local means. The more volatile parts of the vaporized oil approximate gas and explode when ignited, as in a gas engine, while the less volatile parts remain in liquid form and burn as does the sprayed oil in the Diesel engine.

Vessels with Internal-Combustion Gas Engines

Marine gas engines, which comprise a second large group of internal-combustion engines, have been installed in a great many small vessels. On June 30, 1916, for example, 9,237, or nearly 35 per cent of the total number of documented vessels of the United States, were classed as gas motor boats; yet they comprise but 174,968 tons, or 2 per cent of the country's documented gross tonnage.[1] Most of them are very small vessels; but few gas-propelled vessels anywhere in the world have engaged in long-distance over-sea navigation.

[1] *Annual Report of the U. S. Commissioner of Navigation, 1916*, p. 11.

Marine gas engines may be subdivided, with reference to the fuel used, into two classes: (1) those operated with gasified gasoline, naphtha, kerosene or other light refined oils, and (2) those operated with producer gas made from coal. The former have been installed in a large number of yachts and small inland and coasting motor boats, while the latter have been found preferable for larger merchant vessels. Producer gas engines require a producer plant, and have larger cylinders than gas engines in which gasoline or other light oils are used. Their chief merit is the cheapness of the producer gas, which can be made from "practically all grades of fuel of any commercial value without reference to the proportion of sulphur or tarry compounds that they contain. Several of the poorest grades of bituminous coal show remarkable efficiency in the gas producer, and lignite and peat are used with great facility." [1]

As compared with internal-combustion oil engines, relatively little progress has thus far been made in the use of marine gas engines on large seagoing merchant vessels. The use of light refined oils on such craft has not been found commercially practicable, because of the high cost of such oils and the difficulty and danger of carrying them in large quantities. Since producer gas engines must be equipped with a producer plant and require bunkers for the stowage of coal, they result in but little saving in machinery space or weight as compared with the marine steam engine, while they require more fuel space and a larger labor force than does a Diesel marine oil engine of equivalent horse power. The formation of tar when bituminous, lignite or other inexpensive coals are used has, moreover, at times caused difficulty in marine producer gas engines, and not all marine engineers are convinced that a satisfactory reversible gas engine has been invented. The absence of petroleum fields in Great Britain has caused English engineers to take a special interest in the possibility of developing the gas engine for marine work,[2] but thus far the Diesel

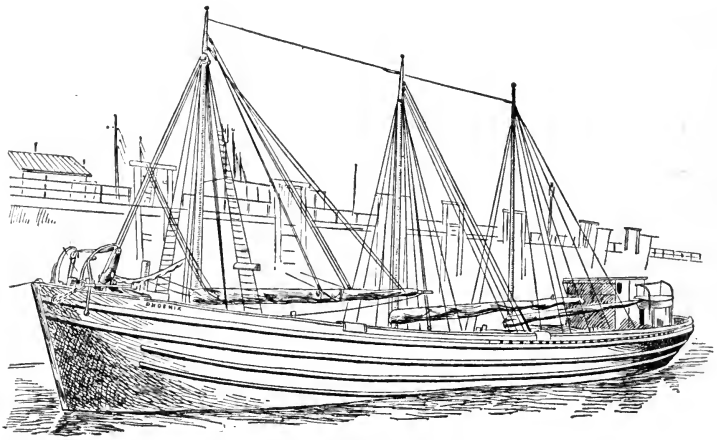
[1] U. S. Bureau of Mines, *Technical Paper*, No. 9, pp. 20-21 (1912).

[2] See A. C. Holzapfel (of Holzapfel Marine Gas Power Syndicate, Ltd., of London), "Gas Power for Ship Propulsion," in *Transaction of the Institution of Naval Architects* (1912).

oil engine has made greater headway in the equipment of the larger types of oceangoing merchant craft.

Unrigged Craft

There has been a tendency in recent years to supplement and partly to displace the self-propelled vessels by using unrigged craft of various kinds for transporting bulky commodities. The number of barges documented under the flag of the United States has increased from 2,362 in 1900 to 4,446 in 1916, and their gross tonnage from 548,317 to 1,027,010 tons. In the latter year as many as 1,147, of 136,254 tons gross, were registered for the foreign trade, and many of the enrolled barges engaged in the coastwise trade of the United States are also of the seagoing type. The importance of



Barge *Phoenix*, of the Philadelphia and Reading Coal and Iron Company's Fleet

barge transportation as a whole is understated in these figures, for many small barges have not been officially documented.

Much the larger share of barges are small craft engaged in short-distance coastwise and inland traffic, and but few venture

into the over-sea trade. Yet distinct types of seagoing barges have been developed. On the Atlantic seaboard the small "inland barges," which mainly use the inland route, are distinguished from the large seagoing barges which are towed on the outside or open sea route. Many of the latter are known as "schooner barges" because they are fitted with short masts and sails, so that they may not be entirely helpless in case they break away from their towing steamer or tug. Schooner barges are towed singly or in fleets of two or three and some of them have cargo capacities of over 3,000 tons.

Barges are especially adapted to the transportation of bulky freight, such as coal, ore and pig iron, lumber, shingles and railroad ties, sand, stone, gravel, brick, lime, cement, tile and terra cotta, fertilizers and phosphate rock, wood pulp, structural iron and steel, grain and other farm produce not requiring rapid delivery. Where sea conditions will permit of their use with a reasonable degree of safety, the large seagoing barges or schooner barges have provided the least expensive means of transporting such commodities. Their initial cost of construction is smaller than that of either sailing vessel or steamer; being towed in fleets the costly machinery of the tug serves to move several craft at once and may be more continuously employed than either the sailing vessel or steamship; they do not require so large a crew, each barge in a fleet of large seagoing schooner barges being manned by a crew of but three or four men; and as compared with sailing vessels they have the advantage of greater regularity of service. As is reported by the United States Bureau of Corporations, the efficiency of the schooner barge in the coal movement is "illustrated by the comparisons of the new Philadelphia and Reading fleet of 11 tugs and 63 barges with the former fleet of 15 steam colliers of the same line. The average carrying capacity of the steam collier was 1,200 tons, the average of the barges is 1,600 tons, and the class A barges have a capacity of 3,300 tons. The old fleet could, in about 500 voyages, deliver approximately 600,000 tons a year, while the schooner barges in 300 voyages from Philadelphia to eastern

ports and return, aggregating about 1,150 barge cargoes, can deliver 2,400,000 tons of coal in 12 months." [1]

The principal handicap of the seagoing barge is its liability to be wrecked by heavy seas. The need of avoiding rough weather interferes to some extent with their regularity of movement, and affects the marine insurance premiums which both barge and cargo are obliged to pay. In fact, some seagoing tugs are uninsured or are covered merely by fire insurance policies. Weather conditions will doubtless at all times limit the use of towed barges in the over-sea trade, but the provision of protected inland routes sufficiently large to accommodate schooner barges would greatly increase their use in the coastwise trade.[2]

A special type of barge is used to some extent in the transportation of crude and refined petroleum. These barges are fitted with tanks in the same way as tank steamers, but they are towed, as they have no other means of self-propulsion than the limited amount of sail with which some of them are equipped. Some tank barges are large seagoing craft, the Standard Oil Company barge No. 94, for example, is 370 feet long, 50 feet wide, 32 feet deep, and has cargo capacity of 50,000 barrels, or over 2,500,000 gallons of oil. The hull is constructed of steel and contains 20 compartments; the masts are of steel; there are engines to do all needed pumping and to hoist the sails; and the vessel is equipped with automatic towing gear, operated by hydraulic power.[3]

In the transportation of logs on the rivers of the Mississippi system and of the Pacific coast "rafts" are towed or floated. Rafts are of less importance in deep-water navigation, but special mention should be made of the huge log rafts which are transported on the open sea along the Pacific coast. They are large cigar-shaped craft consisting of logs bound together with cables and chains, some of them being as much as 720

[1] U. S. Bureau of Corporations, *Transportation by Water in the United States*, I, 146 (1909).

[2] Description of canal boats, river barges, and flat boats is omitted because craft of this kind are not used in ocean navigation.

[3] U. S. Bureau of Corporations, *Ibid.*, 136.

feet in length, 54 feet beam, and 35 feet deep, drawing 22 to 23 feet of water, and containing 3,500,000 board feet of logs. Log rafts have also at times been transported on the Great Lakes. Their dependence upon favorable weather conditions, however, and the constant danger of loss have prevented log rafts from coming into general use in deep-water navigation.

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See also current files of *International Marine Engineering;* the *Marine Review; The Engineer; Marine Engineer and Naval Architect; Transactions of Institution of Naval Architects; Proceedings of Institute of Marine Engineers; Journal of American Society of Naval Engineers.*

CHAPTER V

OCEAN ROUTES

Routing considerations, 58. Main ocean trunk line routes, 60. North Atlantic route, 60. Suez Canal route, 60. South African route, 61. South American route, 62. Caribbean routes, 63. North Pacific route, 63. Pacific coast-Australasian route, 64. Panama Canal route, 64. Triangular routes, 65. References, 67.

THE oceans provide the great highways of international trade, which, from port entrance to port entrance, are free and open to all who observe the international rules of the road at sea. Although ocean traffic follows certain rather definite routes, no nation, and of course no company, can convert any route into an exclusive right of way, such as a railroad corporation possesses. A few short sections of some frequented routes of ocean traffic—the Panama, Suez, Corinth, and Kiel canals—are artificial, and subject to tolls, but their use is normally open to all upon equal terms. This simple but fundamental fact, that the sea is an open highway, causes ocean transportation to be governed by laws different from those controlling the railway service; and the main problems of transportation economics—competition, rates and fares, and government regulation—are radically affected by this difference between the railway and the ocean highway. The rapid growth of the regular steamship line service, which is more readily controlled by ocean conferences and agreements and more easily amenable to government regulation than the tramp service, i. e., the service rendered by independent, chartered vessels, has lessened the difference between ocean and rail transportation somewhat, but has by no means placed them on a common footing.

ROUTING CONSIDERATIONS

The routes followed by ocean ships are determined mainly by the location and traffic importance of the areas between

which trade is being carried on, by the sphericity of the earth, by the size of the land masses lying between the trading areas, and by the location of fuel stations and the cost of coal or fuel oil. The routes followed by sailing vessels are determined also by the location and direction of ocean currents and prevailing winds. Among the minor causes influencing the routes of both steamers and sailing vessels may be mentioned the absence or prevalence in certain areas of the sea of floating ice, or of severe storms at different seasons of the year.

On account of the spherical shape of the earth, the shortest distance between any two places on the earth's surface is the arc of a great circle connecting the two points. This fact influences nearly all ocean routes, and particularly those across the north Atlantic and the north Pacific. For instance, Yokohama and San Francisco are in practically the same latitude—i. e., Yokohama lies directly west of San Francisco; but the short route between the two places, being the arc of a great circle, curves northward to the Aleutian Islands. It is only upon a globe that the relative length of ocean routes can be correctly shown, but the location of the principal ocean routes is indicated and their mileage lengths are stated on map No. 1 drawn on the Mercator projection.

The steamer can usually take the short route, but the sailing vessel must shape its course with reference to the currents and prevailing winds, although by so doing the distance may be greatly increased. In sailing from New York to Rio Janeiro, for example, a vessel will steer eastward with the winds and currents to the vicinity of the Azores, or nearly across the Atlantic, where, a longitude east of Cape St. Roque having been reached, the ship will turn toward the south, and, with the aid of the northeast trade winds north of the equator and of the southeast trades of southern latitude, will readily make the port of Rio Janeiro.

Main Ocean Trunk Line Routes

Ocean routes are many in number and of different degrees of importance; there being, as in the case of railroads, trunk

lines and auxiliary routes, main lines and feeders. The following are the most important trunk line routes:

1. The ocean trunk line having the heaviest freight and passenger traffic is the one connecting the northeastern seaports of the United States with the entrance to the British Channel. Upon this north Atlantic trunk route more than one-sixth of the world's entire shipping is employed, it being the direct route between the principal commercial countries of the world. In order to conform as closely as possible to a great circle, this route skirts the coast of North America northward to the Banks of Newfoundland, and then curves across the Atlantic. The branch lines which unite in this north Atlantic trunk route reach American ports from Canada to the Caribbean, and European ports from the Baltic to the Mediterranean. Vessels plying between Europe and Gulf and West Indian ports take a course but slightly south of this route, and pass comparatively close to the coast of the United States. The route from Great Britain to the Panama Canal via New York is only 323 miles longer than the most direct course; and vessels plying between the West Indies or Central America and northern Europe frequently call at Hampton Roads to replenish their coal supplies.

2. The ocean trunk line ranking next to the one across the north Atlantic is the route from the eastern United States and western and southern Europe via the Mediterranean and the Suez Canal to India, the East Indies, China and Japan. Before the Suez Canal was opened in 1869, the ocean commerce of Europe and the United States with eastern countries was carried in sailing vessels around the Cape of Good Hope, and was small in comparison with the great volume of traffic now passing through the Suez Canal. As sailing vessels cannot navigate the Red Sea, only steamers use the Suez Canal route.

This ocean trunk line has an especially large number of branch lines or feeders both east and west of the canal. At Gibraltar the routes from the United States, Great Britain and western European countries join the main route for Suez;

throughout the length of the Mediterranean, branch routes connect it with the ports of southern Europe; at Aden, although the main ocean track proceeds to Colombo, some vessels take the branch route southward to Zanzibar, Mauritius and Delagoa Bay, others take the track leading northward to the Persian Gulf, and still others proceed northeastward to Bombay and Kurrachee. At Colombo the trunk route is again split up for branch routes extending northward to Calcutta and Burma, southward to Australia, and eastward to the East Indies, Singapore, Manila, and the ports of China and Japan.

Although all merchant vessels navigating this route are treated equally, it is not a free ocean highway, because it passes through the Suez Canal. The company which operates the canal, under the provisions of its concession of 1856 and the international treaty of 1888, requires each merchant vessel to pay a vessel toll[1] of 8.50 francs ($1.64) per net vessel ton, if loaded, and 6 francs ($1.158) per ton if in ballast; and if it has passengers on board, an additional passenger toll of 10 francs for each passenger above twelve years of age and 5 francs for each passenger between the ages of three and twelve is collected. So greatly, however, does the Suez Canal reduce sailing distance and time as compared with the route around South Africa, that 5,000 vessels, measuring over 20,000,000 tons net tonnage, annually navigate the canal route to and from points beyond Suez in normal years.

3. A third ocean trunk line is the South African. Its Atlantic termini are in Europe and America; its main eastern connections are with the western, southern and southeastern coasts of Africa, with Australia and New Zealand, and, for sailing vessels, with the East Indies and the Orient. Some ships on this route from Europe engage in the West African coasting trade, but more do not. A large share, but not all of the shipping on this route, calls at Cape Town, the most important center of the South African trade, and at Durban in Natal for coal. The heaviest traffic over this South Afri-

[1] Tolls effective July 1, 1917.

can route is carried by the numerous lines of freight steamers running from northwestern Europe to Australasia. Passenger and mail steamers take the Suez route from the British Channel to Australia; but the distance saved, being less than 1,000 miles, is not enough to cause freighters to abandon the Cape route. Any extensive interference with the Suez route—such as has occurred during the great European War—causes a diversion to the South African route of many steamships which normally are engaged in the Australian and Oriental trade via the Suez Canal.

4. Corresponding with the route just described is the trunk line around South America, connecting the eastern and western shores of the north Atlantic with the Pacific coast of the Americas. In addition to the through traffic carried between the Atlantic and Pacific regions over this route, there are carried on, usually distinct from the through traffic, the Pacific coastwise trade, and the trade of Europe and the eastern United States with Brazil and the countries of the Rio de la Plata.

Vessels engaged in the trade between the countries of the north Atlantic and the east coast of South America usually do not engage in the through traffic with regions beyond the Straits of Magellan. Various lines of ships ply back and forth between Europe and Brazil and the mouth of the Plata, and some also between the United States and those sections of South America; but a considerable share of the imports of hides, wool, coffee and rubber from eastern South America has been brought to the United States in vessels that take cargoes from Europe to South America, and load there for the United States, where cargo for Europe is readily obtained. This is but one of many triangular routes followed by ocean shipping; it is, however, one of the most important ones.

When the Panama Canal was completed, all or nearly all of the steamships which formerly operated via the Straits of Magellan were diverted to the isthmian route. Indeed, the main reason for constructing the Panama Canal was to shorten the water route between the countries of the north Atlantic

and the Pacific coast of the three Americas. Sailing vessels may continue to sail around the Horn between Atlantic and Pacific ports, for the calms of Panama Bay discourage their use of the Panama Canal, but they will find greater difficulty in competing against their self-propelled rivals.

5. Although the traffic of the Gulf of Mexico and the Caribbean Sea—the two bodies of water which together are often called the American Mediterranean—may be said to be handled over routes that are southern branches and extensions of the north Atlantic trunk line, the present and prospective importance of the trade of the countries along the Caribbean and Gulf littoral afford good reason for placing the routes of that trade in a separate class. The main entrance from the Atlantic to the Gulf is the Florida Strait; the principal gateway to the Caribbean is the Windward Passage, at the east end of Cuba; but the Mona Passage, east of Porto Rico, and other channels to the south, are also used. Vessels enter the Gulf either to handle the grain, cotton and lumber exports from the Gulf cities of the United States, or to make the circuit of the Gulf and to share in the general trade of the adjacent countries with each other and with Europe and the north Atlantic ports of the United States. Likewise the ships entering the Caribbean from the United States or Europe call at several ports and make at least a partial circuit. Moreover, there is a growing trade carried on entirely within the American Mediterranean between the Gulf coast of the United States and the ports to the south. The lines followed by the traffic of the Gulf and Caribbean are so complex that they may be more accurately called a system or group of routes than a trunk line. As may be seen in Map No. 1, numerous steamship paths radiate to and from the ports of the West Indies, Mexico, Central America, the north coast of South America, and the Gulf coast of the United States.

6. The most important trade route within the Pacific is the one connecting North America and Asia. Having for its American termini the chief ports from San Diego to

Prince Rupert, and for its Asiatic focus Yokohama, with extensions from that port of call to other Japanese ports, to Shanghai and other cities of the mainland, and to Manila, this north Pacific trunk line is the route of the rapidly developing transpacific trade. The shortest course across the ocean being by the great circle, that northerly route is taken, except by such line vessels as call at Honolulu and thereby add 1,000 miles to the voyage from San Francisco across.

7. One other Pacific route calls for special mention, the one from the Pacific coast of North America to Australasia. This Pacific coast-Australasian trunk line has for its two main termini in the United States, San Francisco and the Vancouver-Puget Sound section. New Zealand and Australia are its western termini. The sailings over this trunk line are most frequent via Honolulu and Samoa or Fiji, and thence either to New Zealand or to Australia; but another course much followed is from San Francisco via Tahiti in the Society Islands, and thence either direct to Sydney or to New Zealand, and thence to Australia. The fast-mail route from Australia to Europe is across the Pacific to San Francisco or Vancouver, across the continent by rail to New York or Halifax, and on by express steamer; but in the absence of adequate mail steamers on the Australasian route the mails have frequently been forwarded through the Suez Canal. The freight traffic between Australasia and the western coast of North America is not so heavy as that over the other ocean trunk routes described, and the Panama Canal will restrict the future growth of the business done by this route.

8. As the opening of the Suez Canal in November, 1869, created a great ocean route, so the opening of the Panama Canal in August, 1914, provided another that is destined to play an important rôle in the world's commerce. The Panama route is in a sense but an extension of the Caribbean route, much freight having formerly been transshipped between the Atlantic and Pacific by rail across the Isthmus at Panama and at the Isthmus of Tehuantepec. The opening of the great waterway, however, made the Panama route a distinct ocean

highway. It not only obtained the traffic which was formerly transshipped by rail, but also a portion of the traffic which was shipped via the South American, South African and Suez Canal routes. It is, moreover, expected that it will in the future stimulate the international commerce of the world and the intercoastal trade of the United States, and in that way create much distinctively new ocean traffic.

The commercial use of the Panama Canal began August 15, 1914, and from then until July 1, 1917, it was navigated by 3,751 vessels having a net tonnage of 12,332,155 and carrying 15,339,093 tons of cargo. When normal trade is resumed throughout the world the traffic of the canal may be expected to rise to a higher level. The ocean trade between the Atlantic and Gulf ports of the United States on the one side and the Pacific ports of North and South America, Honolulu, Manila, Australia, New Zealand, Japan and of China as far south as Hongkong on the other, will move via Panama. The canal will similarly provide the standard ocean route for merchant vessels sailing from Great Britain and western continental Europe to the Pacific ports of North and South America. It will also be a factor—although a much smaller one—in the trade of Great Britain and western continental Europe with New Zealand, Australasia and Japan.

As at the Suez Canal, so also at Panama, all merchant vessels are required to pay tolls. The Panama toll on merchant ships with cargo or passengers on board is $1.20 per ton upon the vessel's net tonnage, and on vessels in ballast 40 per cent less, or 72 cents, per ton. These tolls are light when compared with the savings in sailing time and distance, fuel costs, transshipment costs, and traffic advantages which the Panama Canal affords in competition with rival ocean routes.[1]

Triangular Routes

These eight general routes or trunk lines of ocean traffic are but a few of the many tracks followed by the world's shipping.

[1] For description of the Panama Canal see chapter vi.

These tracks cross and recross, and vessels are constantly passing from one trunk route or branch line to another in response to demands of the world's intricate commercial movements. A study of the accompanying map (No. 1) will serve to locate the most important ocean routes followed by steamers and sailing vessels. The general divergence of steamer and sailing routes in the Atlantic and Pacific is clearly shown.

Vessel operators are continually endeavoring to arrange their routes so that each voyage will, as far as practicable, yield the maximum profit. Since the volume of trade between the termini of any of the great ocean routes is seldom equal in both directions, numerous triangular voyages are arranged. They are especially numerous in the tramp or chartered freight services; indeed, tramp vessels having no definite termini may make many distinct voyages before returning to their original port of clearance. Triangular voyages are not uncommon even in the steamship line service which is conducted over established routes.

Triangular voyages are made with especial frequency in the trade with South Africa, South America and Australia. Vessels carrying cargoes from New York to South Africa may, before returning, proceed to India or Australia for a cargo to Europe, and ultimately return to the United States from a European port. A vessel may likewise sail from Europe to Brazil or Argentina and return with a cargo obtained in the United States; and another may carry American exports from New York to Australia but return with a cargo obtained in the Orient, in Chile or on the Pacific coast of the United States. The United States Steel Corporation, in order to operate a profitable line from New York to Vancouver, found it necessary on the return voyage to carry lumber or coal from Vancouver to the Gulf of California, thence carry cargoes of copper matte to Dunkirk, France, and finally return to New York with cargoes of French chalk.

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See also references under chapters vi, vii and viii.

CHAPTER VI

THE SUEZ CANAL

Construction and improvement, 68. Traffic, revenues and tolls, 71. Value to international commerce, 73. Distances saved, 73. Growth of traffic: to and from regions beyond Suez, 74; to and from Europe, eastern United States, etc., 75. Naval and military value, 76. References, 76.

Four great interoceanic or isthmian canals have been constructed to shorten and improve the world's natural ocean routes. The Suez and Panama canals have been mentioned, because they constitute essential parts of two of the eight main trunk line routes, but their commercial and industrial, military and naval functions are so far-reaching that more detailed description is advisable. Two other isthmian waterways—the Kiel or Kaiser Wilhelm and the Corinth canals—are of less commercial and industrial value to the world as a whole, but are nevertheless of international consequence. All of these waterways differ from maritime canals such as the Amsterdam and Manchester canals or canalized rivers such as the Delaware, Columbia, Weser, Elbe, Thames and many others, which extend ocean routes to inland ports and are of great local importance to the ports and countries that they serve.

The Construction and Improvement of the Canal

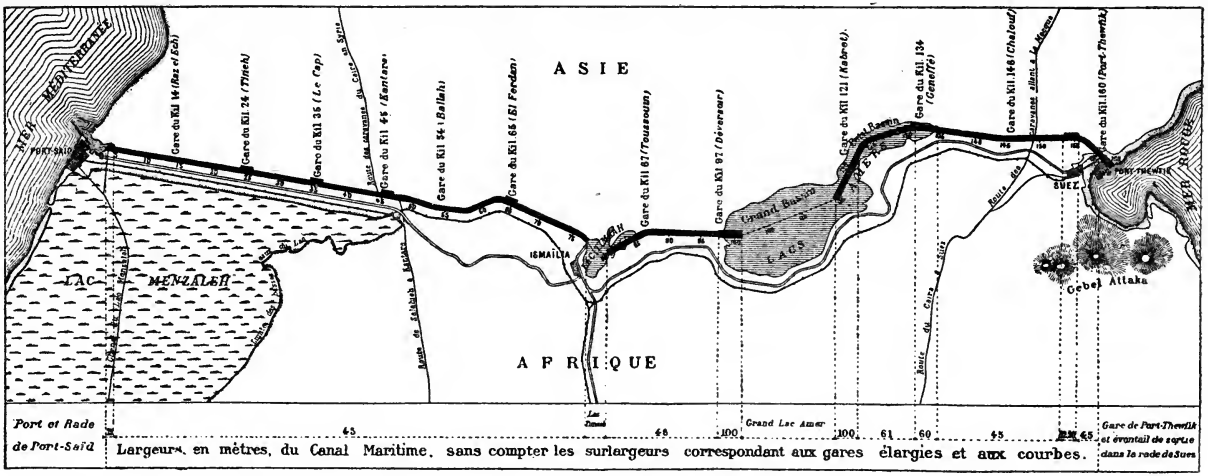
The first of the interoceanic waterways to be completed was the Suez Canal, which was begun in 1859 and opened for traffic in 1869. It was promoted by the famous French engineer, Ferdinand de Lesseps, and was built by a private company, the Suez Maritime Canal Company, at an original cost of £16,632,953 (about $80,000,000). Enlargements and improvements required additional investments in later years, the total capital expenditure of the company to 1915 being about $135,591,000.

Map 2

COMPAGNIE UNIVERSELLE DU CANAL MARITIME DE SUEZ

PLAN GÉNÉRAL DU CANAL

au 31 Décembre 1915


MER MEDITERRANEE
PORT-SAID
Gare du Kil 14 (Ras el Esh)
Gare du Kil 24 (Tineh)
Gare du Kil 35 (Le Cap)
Route des serviteurs du Caire à Suez
Gare du Kil 44 (Kantara)
Gare du Kil 54 (Ballah)
Gare du Kil 65 (El Ferdane)
ASIE
Gare du Kil 97 (Déversoir)
Grand Bassin
LAC
Gare du Kil 121 (Kabret)
Gare du Kil 134 (Genefeh)
Gare du Kil 146 (Chalouf)
Gare du Kil 160 (Port-Thewfik)
SUEZ
PORT-THEWFIK
MER ROUGE
LAC MENZALEH
ISMAILIA
Route de Zagazig à Ismailia
Route des serviteurs du Caire à Suez
Route des serviteurs allant à la Mecque
Route du Caire à Suez
Gebel Attaka
AFRIQUE
Port et Rade de Port-Saïd
Largeurs, en mètres, du Canal Maritime, sans compter les surlargeurs correspondant aux gares élargies et aux courbes.
Grand Lac Amer
Gare de Port-Thewfik et évantail de sortie dans la rade de Suez

La profondeur minimum du Canal Maritime est de 10 mètres. — Les largeurs du Canal Maritime sont comptées à la profondeur de 10 mètres.

——— Tracé du Canal d'eau douce du Caire à Suez par Ismaïlia (Canal Ismaïlieh), et d'Ismaïlia à Port-Saïd (Canal Abbassieh).—

——— Tracé du chemin de fer du Caire à Port-Saïd et à Suez, par Ismaïlia.—

The construction difficulties were small in comparison with those encountered in the building of the Panama Canal. Its length from Port Said to Suez is 87 nautical, or 100 English, miles, but, as shown in the accompanying map (No. 2), relatively little expensive excavation was necessary because its route follows low ground, and various natural or easily formed inland lakes could be utilized.

It is a sea-level waterway, with an original depth of 26 feet 3 inches, and a bottom width of 72 feet 2 inches. These dimensions were, in the main, adequate for two decades, as the draft of the vessels engaged in the Oriental trade did not reach the authorized maximum of 24 feet 7 inches until 1880. Although numerous improvements had meanwhile been made, the general enlargement of the canal's dimensions was not inaugurated until 1887. Since then the depth has gradually been increased. By 1908 a depth of 32 feet 9 inches was attained and a maximum vessel draft of 28 feet was authorized; and in 1909 a new program, calling for a depth of 36 feet 1 inch and an authorized vessel draft of 31 or 32 feet was adopted. The bottom width of the canal had been increased to a minimum of 98 feet 5 inches in 1898, and under the program of 1909 it is now being enlarged to 134 feet 6 inches. In 1915 the canal had a minimum depth of 35 feet and a minimum bottom width of 108 feet; and on January 21, 1915, a maximum vessel draft of 30 feet was authorized. The growth in canal dimensions, the straightening of curves, increase in the number of "lay-bys" or passing stations, and the improvement in facilities have caused the average time of vessel transit to decline from 48 hours 58 minutes in 1870 to 16 hours 11 minutes in 1914.

The Suez Canal is still the property of the original company, the capital stock of which has sold at a premium of over 1,000 per cent. In 1875 the British Government, through Lord Beaconsfield, purchased 176,602 shares from the Khedive of Egypt, but the British Government, according to latest reports, does not own a majority of the total shares of the company, of which 400,000 were authorized in 1859, and of which

372,846 were in circulation in 1915. The ownership of a large block of stock and the political control of Egypt has, however, given to the British Government a foremost position in the affairs of the Suez Canal.

Great Britain's rights as a stockholder have not been exercised to the exclusive advantage of British shipping, nor may the French company which operates the canal legally discriminate in favor of French shipping. The canal is an international waterway, and in times of peace is open to the vessels of all nations on terms of equality. The second concession, which the company obtained from the Viceroy of Egypt, January 15, 1856, provides that the canal shall be open to all as a neutral highway "without any exclusive distinction or preference of persons or nationalities." The international convention of October, 1888, signed by Great Britain, Germany, Austria, Spain, France, Italy, the Netherlands, Russia and Turkey, likewise provides that the canal shall "always be free and open, in times of war as in times of peace, to every vessel of commerce or of war without distinction of flag." Great Britain made certain reservations as to the use of the canal by vessels of war, but these were modified by an additional special agreement—the Anglo-French agreement of April 8, 1904.

Traffic Revenues and Tolls

The Suez Canal has been notably successful commercially and financially. The number of vessels making the canal passage has increased from 486 in 1870 to 3,441 in 1900, and 5,373 in 1912; and during the same years the net tonnage, the tonnage on which tolls are collected, grew from 437,000 to 9,738,000 to 20,275,000 tons. In 1916, 3,110 vessels of 12,325,347 net tonnage passed through the canal. The gross receipts of the canal company, even though the rate of toll on vessels has been gradually reduced, totaled 93,451,000 francs in 1900 and 139,923,000, or $27,005,000, in 1912. In 1914, largely because of war conditions and the reduced rate of tolls which became effective January 1, 1913, the gross receipts of the company declined to 125,121,000 francs, and in 1916 to 89,-

044,276 francs. The net revenue per share, of 500 francs par value, of the company's capital, which had amounted to 23.5 francs annually during the years 1870 to 1874, had risen to 108 francs in 1900 and to 165 in 1913, and even in 1915 it aggregated 120 francs per share.

The principal source of revenue is the toll which each vessel is obliged to pay on its net tonnage. The company's concession limited tolls to 10 francs per "ton of capacity," but, in the absence of a tonnage definition, a serious dispute arose as to the meaning of this limitation. At first the company collected a toll of 10 francs on the official net register tonnage of all vessels as determined by their respective governments; but in 1872, both because this practice resulted in the unequal treatment of vessels of different nationalities and because it produced insufficient revenues, the company proceeded to base its tolls on the official gross tonnage of vessels. Shipping interests then objected so effectively that in 1873 the Sultan of Turkey convened an International Tonnage Commission at Constantinople to determine the meaning of "ton of capacity." This commission decided that the term referred to the net tonnage of a vessel as determined in accordance with a special code of measurement rules which it promulgated.[1] It also decided that the company should be permitted to charge—in addition to the regular toll of 10 francs—a surtax of 3 francs per net ton, which should decline gradually as the company's traffic increased, and be abolished when it reached 2,600,000 tons annually. Later, in 1876, after Great Britain had become a large stockholder, the surtax was extended until January 1, 1884. Since 1884, when the vessel toll was 10 francs per net ton, it rapidly declined, 50 centimes at a time, because the earnings of the canal increased at a rapid rate. On January 1, 1913, the toll reached 6.25 francs ($1.206) per net ton; but during the European War it was advanced several times, and on July 1, 1917, it reached a level of 8.50 francs ($1.64).

It has been the practice since 1874 to reduce the regular toll on merchant vessels by 2.50 francs per ton in case of vessels

[1] See chap. ix, pp. 118, 121.

passing through the canal in ballast. As stated above, the company also charges a special passenger toll of 10 francs per passenger—5 francs for children from 3 to 12 years of age. It, moreover, obtains certain revenues from miscellaneous sources, such as the lease and sale of lands and buildings, water-works sales, investments of available funds, the cession of a trolley line from Port Said to Ismailia, pilotage, towage, wharfage and berthing, and the lease of floating equipment.

Value of the Canal to International Commerce

The great commercial advantages which the world has obtained from the construction of the Suez Canal spring from its service as a short route to the East for merchant steamships, which otherwise would be obliged to navigate the South African route. The vessels which the canal draws from Europe and the United States branch off in different directions at Aden, at Colombo, and again at Singapore, and proceed to widely scattered Asiatic, African and Australasian destinations.

The following table gives the distances from Liverpool and New York via the Cape of Good Hope and the Suez Canal to a typical port in India, Java, China and Australia, and states the number of miles saved by the canal:

Table 1.—Distances from Liverpool and New York via Cape Town and via the Suez Canal to Selected Ports

From	To Bombay	To Batavia	To Hongkong	To Sydney
Liverpool via				
Cape Town.....	10,730	11,205	13,195[1]	12,626
Suez Canal.....	6,189	8,516	9,785	12,235[2]
Distance saved.....	4,541	2,689	3,410	391
New York via				
Cape Town[3].....	11,511	11,986	13,966	13,306
Suez Canal.....	8,102	10,429	11,673	13,512[2]
Distance saved.....	3,409	1,557	2,293	−206

[1] Via Singapore.
[2] Via Colombo and Melbourne.
[3] Including call at St. Vincent.

TABLE 2.—GROWTH OF SUEZ CANAL TRAFFIC (NET TONNAGE) TO AND FROM REGIONS BEYOND THE SUEZ (1895–1913 [1])

YEARS	East Africa	Bombay and West India	Calcutta and East India	Straits, Siam, Philippines, and Dutch East India	China, Cochin China, and Japan	Australia	Other regions	Total
1895	357,000	2,015,000	2,417,000	1,003,000	1,400,000	840,000	416,000	8,448,000
1896	269,000	1,649,000	2,411,000	1,085,000	1,578,000	871,000	697,000	8,560,000
1900	404,000	1,128,000	2,763,000	1,372,000	2,756,000	864,000	451,000	9,738,000
1905	482,000	2,623,000	3,722,000	1,671,000	2,943,000	995,000	698,000	13,134,000
1910	510,000	3,359,000	4,300,000	1,987,000	3,977,000	1,704,000	745,000	16,582,000
1911	710,000	3,723,000	4,639,000	2,331,000	4,060,000	1,940,000	958,000	18,325,000
1912	747,000	4,812,000	4,947,000	2,435,000	4,202,000	2,037,000	1,095,000	20,275,000
1913	816,000	4,129,000	5,058,000	2,383,000	4,548,000	2,104,000	996,000	20,034,000

[1] Later figures classified by countries not available at present.

TABLE 3.—GROWTH OF SUEZ CANAL TRAFFIC (NET TONNAGE) TO AND FROM EUROPE, EASTERN UNITED STATES AND OTHER COUNTRIES WEST OF SUEZ, 1895–1911[1]

YEARS	Great Britain	Germany	France	Belgium, Holland, Denmark, Sweden, and Norway	Greece, Turkey, and Egypt	Italy and Austria-Hungary	United States	Other regions	Total
1895	4,614,000	713,000	1,116,000	618,000	399,000	358,000	123,000	507,000	8,448,000
1896	4,119,000	818,000	988,000	626,000	533,000	640,000	194,000	642,000	8,560,000
1900	4,224,000	1,298,000	1,198,000	771,000	362,000	530,000	661,000	694,000	9,738,000
1905	5,865,000	1,571,000	1,573,000	1,196,000	1,014,000	805,000	741,000	369,000	13,134,000
1907	6,626,000	1,807,000	1,679,000	1,430,000	1,004,000	944,000	934,000	304,000	14,728,000
1910	8,202,000	2,370,000	1,611,000	1,783,000	399,000	980,000	843,000	394,000	16,582,000
1911	8,808,000	2,643,000	1,550,000	2,066,000	581,000	940,000	1,295,000	[1]442,000	18,325,000

[1] Later figures classified by countries not available at present.

The actual commercial use that has been made of the Suez Canal in recent years is shown by Tables 2 and 3, which indicate the origin and destination of the traffic in countries west and east of the canal. (See pages 74 and 75.)

The Suez Canal has a new traffic rival since the opening of the Panama Canal, for the American waterway becomes the short route for vessels bound from the eastern and Gulf seaboards of the United States to Australasia and the Orient as far south as Hongkong and Manila. The Suez Canal may also need to share with its rival a small portion of the commerce of Europe with New Zealand, Australia and Japan.

Naval and Military Value

The commercial advantages which the Suez Canal affords are supplemented by naval and military advantages. It permits of the speedy passage of naval vessels and transports from European countries to their eastern colonial possessions, and in case trouble arose between the foreign countries lying to the west and east of Suez the canal may be utilized in a similar manner. Russian naval vessels passed through the canal in 1904-1905 on their way to the East; and troop movements to the number of 228,720 were reported by the company in its statistics of passenger traffic for 1914 and 119,812 for 1915.

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CHAPTER VII

THE PANAMA CANAL

Origin and acquisition, 79. Preliminary problems, 80. Sanitation, 80. Contract or government construction, 81. Sea level or lock construction, 81. The canal route, 81. Operation of canal, 83. Operating rules, 84. Tolls, 84. Economic value, 85. Saving in distances, 85. Saving in sailing time, 88. Reduction in fuel costs, 88. Other routing advantages, 88. Effect on commerce, 89. Canal traffic, 90. Effect on merchant marine, 92. Effect on industries, 93. Naval and military value, 94. References, 94.

THE search for an all-water route between the Atlantic and the Pacific oceans began centuries before the United States Government undertook the construction of the Panama Canal. "Since the golden age of discovery inaugurated by Columbus the quest for an all-water way from Europe to the Far East, across the Atlantic and Pacific, has been a world obsession. The idea has possessed the minds of navigators, shippers, business men, admirals and governments. Dozens of projects for the forcing of the passage have been advanced; thousands of lives have been lost in the efforts."[1] Interest on the part of the United States was stimulated during the last decade of the eighteenth century, when in the years 1787 to 1790 American vessels sailing via the Horn began to conduct a lucrative trade which took them to the Oregon coast, the Hawaiian Islands and China; and when in 1791 the American whaling industry was extended into the Pacific. Interest was again aroused in the forties at the time of the Mexican War and the settlement of the "Oregon country" disputes. Widespread interest in the construction of a canal either through Central America or across the Isthmus of Panama did not, however, arise until the California gold discoveries in 1848 and 1849.

[1] *Official Handbook of the Panama Canal*, 1915, p. 5.

Origin and Acquisition

The exodus of large numbers of people to the Pacific coast during the period of the "gold fever" and the difficulty of transporting needed supplies to California became an acute transportation problem. Many gold seekers traveled overland by caravan or made the long voyage around South America. Others made the trip via Panama, and they and their goods were taken across the Isthmus of Panama by small boats up the Chagres River and by pack trains over the divide to the Bay of Panama. Some also were transferred across Nicaragua by way of the San Juan River and Lake Nicaragua and a portage from the lake to the Pacific. Lines of vessels operated between the Atlantic ports and the Caribbean shore of the Isthmus of Panama and also between New York and Greytown, Nicaragua; and others were similarly put into service from the Bay of Panama and San Juan del Sur, Nicaragua, to California ports. In 1855 a group of American capitalists completed a railroad across the Isthmus of Panama.

During the decade 1850-1860 surveys and studies of canal routes at various locations from the Atrato River to the Isthmus of Tehuantepec were made. In the eighties (1883-1889) a French company, headed by Ferdinand de Lesseps, the builder of the Suez Canal, endeavored to build a sea-level canal across the Isthmus of Panama, but failed because of the prevalence of disease in the canal zone and the magnitude of the financial difficulties encountered. Five years later work was resumed by a reorganized company, but little progress was made. A company of American capitalists also endeavored to construct a canal across the Nicaragua route during the years 1885-1893, but failed financially.

Meanwhile the United States Government entered into various treaties—with Great Britain in 1850, with New Grenada (Colombia) in 1846, with Mexico in 1853, with Honduras in 1864, and with Nicaragua in 1867—which variously guaranteed the neutrality or equal use of interoceanic canals wherever or by whomsoever they might be built; or guaranteed

most favored nation treatment to the citizens of the United States; or defined the management of such waterways. Later, from 1895 to 1899, three separate commissions were appointed by the United States Government to investigate the canal route, and in 1902 it was decided to carry the Panama project to completion. In 1901 a new treaty — the Hay-Pauncefote Treaty—was made with Great Britain to supersede the old Clayton-Bulwer Treaty of 1850. In 1902 the concession and the property of the French Canal Company were purchased for $40,000,000; and in 1903-04 the cession of the canal zone was obtained from the Republic of Panama. The negotiations which had originally been opened with Colombia had failed; and it was not until the State of Panama declared itself an independent country that a cession was obtained, and not from Colombia but from the newly established republic.

In the cession treaty of November 18, 1903, the United States agreed to pay to the Republic of Panama $10,000,000 and an annuity of $250,000 beginning in 1913, and also agreed to permit the government vessels of Panama to navigate the canal free of charge. The United States further agreed to operate the waterway in accordance with the terms of the Hay-Pauncefote Treaty. The United States obtained a zone 10 miles in width to be used for canal purposes and the right to undertake the sanitation of the Panamanian cities of Colon and Panama. The ownership and government of the Canal Zone are vested in the United States Government, but its political sovereignty technically remains with the Republic of Panama.

Preliminary Canal Problems

The construction of the Panama Canal was begun by the United States in a preliminary way in 1904, but it did not progress rapidly until three problems were solved:

1. It was necessary to put the Canal Zone and the cities of Colon and Panama in a sanitary condition, and to stamp out or control yellow fever and malarial fevers. The work of exterminating disease-carrying mosquitoes, which had been con-

ducted in Cuba, was put into practical use at Panama, with such a high degree of success that after two years of effort the death rate in the Canal Zone was reduced to a surprisingly low level.[1]

2. It was necessary to decide whether the construction work would be let out to contractors or be performed directly by the United States Government. Failing to obtain satisfactory bids from contractors, the government at the end of two years decided to execute the work itself.

3. There was much difference of opinion as to the type of canal that should be constructed. A majority of American engineers favored a lock canal, but some were in favor of a sea-level waterway, and these were supported by many European engineers. A board of thirteen consulting engineers was appointed to obtain full information and make recommendations. A majority, consisting of the five foreign engineers who had been appointed and three of the American members, reported in favor of a sea-level canal; but since the majority of the American members of this board, as well as a majority of the engineers on the board which had been appointed to build the canal opposed the building of such a waterway, the problem was submitted to Congress, which decided in favor of a lock canal.

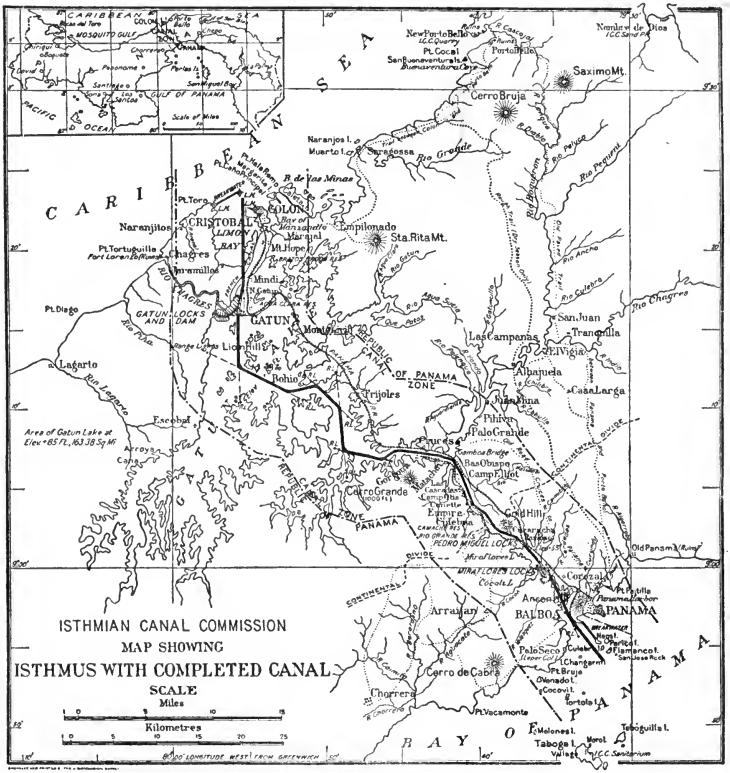
The Canal Route

As is shown in map No. 3, the Panama Canal extends from Cristobal on Limon Bay on the Caribbean side to Balboa on the Bay of Panama. Its course runs more nearly north and south than east and west, for it extends through an isthmus running northeast and southwest. The Pacific end of the canal lies about 20 miles east of its Atlantic end. It is 43.84 nautical miles—about 50 statute miles—in length, and has a minimum depth of 41 feet and a minimum bottom width of 300 feet.

Beginning in Limon Bay, the canal runs almost due south

[1] *See* W. C. Gorgas, *Sanitation in Panama.*

in a sea-level section 7 miles in length, 4½ miles of which consist of a submerged channel in the bay. It reaches the Chagres River at Gatun, where, in order to create Gatun Lake and to control the Chagres, which is a torrential tropical stream, a



Map 3

huge dam was constructed. Gatun dam is one of the great engineering features of the canal. It is nearly 1½ miles long, half a mile wide at the base and 100 feet wide at the top. Near the center is a huge concrete spillway for discharging the surplus water of the lake into the lower channel of the Chagres River. A massive set of locks in three successive

levels is provided to overcome the difference of 85 to 87 feet between sea level and the surface of Gatun Lake. Each lock—and this is also true of all the other locks of the canal—contains parallel chambers which are 1,000 feet long and 110 feet wide and have a minimum water depth of 45 feet. Gatun Lake, which is reached after passing through the locks at Gatun, has an area of 164 square miles and is the largest artificially made lake in the world. Together with the valley of the Chagres, it provides 24 miles of channel with a minimum depth of 45 feet, and a bottom width varying from 500 to 1,000 feet.

The canal route leaves the Chagres valley at Gamboa, for here the river valley turns sharply to the east. To reach the Pacific slope it was necessary to cut through the continental divide. The passageway which is now known as Gaillard Cut is 7.97 miles long, 300 feet wide at the bottom and has a water depth of 45 to 65 feet. It is here that the costliest work of the canal was done, and where great slides of earth have caused serious difficulty both during the construction of the canal and after it was opened to traffic.

At the south end of Gaillard Cut the waters are held back by Pedro Miguel dam and lock. The vessel in passing through the lock on its way to the Pacific is lowered $30\frac{1}{3}$ feet to Miraflores Lake, a small lake 1.4 miles in length. The normal surface of this lake is 55 feet above sea level, but upon reaching the south end of the lake the vessel passes through a third set of locks—Miraflores locks—the two lifts of which lower the vessel $54\frac{2}{3}$ feet to mean sea level. The water in Miraflores Lake is impounded by two dams, which connect with the locks. From these locks a sea-level canal section extends to the Bay of Panama, and in the bay there is a submerged channel $4\frac{1}{2}$ miles in length.

Operation of the Canal

The rapidity and success with which the United States Government, through the Isthmian Canal Commission, constructed

the Panama Canal has been justly heralded throughout the world. The waterway was opened for traffic August 15, 1914, and from then until July 1, 1917, 3,751 vessels of 12,332,155 net tonnage and carrying 15,339,093 tons of cargo, navigated the waterway. Had the commerce between the Atlantic and the Pacific not been seriously cut down by the European War it is probable that the traffic of the canal during this period would have been considerably greater. It was estimated that the canal's traffic during its early years of operation would aggregate about 10,500,000 tons net of shipping annually.

Steps preparatory to the operation of the canal began to be taken in 1911, and on August 24, 1912, the required legislation was enacted by Congress. Operating rules were prepared in advance of the opening of the canal, operating forces were organized, operating facilities were installed, and arrangements were made for the sale of coal, fuel oil and supplies, for the repair of vessels and the handling and transfer of freight.

November 13, 1912, after an investigation of traffic and tolls had been made,[1] the President officially fixed a schedule of tolls, under which merchant vessels are required to pay a toll of $1.20 per net vessel ton in case they have freight or passengers on board, and 40 per cent less if they make the passage in ballast; and vessels of war are required to pay a toll of 50 cents per ton of actual displacement. As originally promulgated, the executive order excluded American vessels engaged in the coastwise trade, because such vessels had been exempted from the payment of tolls by act of Congress; but this exemption was repealed by Congress on June 15, 1914.

Since the opening of the canal all merchant vessels have been obliged to pay the tolls mentioned above, subject to the single limitation that the tolls collected from any vessel shall not exceed the statutory maximum of $1.25 per ton based on its net register tonnage as ascertained in accordance with the national measurement rules of the United States. The toll of $1.20 on merchant ships is based upon their net tonnage as derived in accordance with a special code of "rules for the

[1] E. R. Johnson, *Panama Canal Traffic and Tolls.*

measurement of vessels for the Panama Canal," the purpose of which is to disclose the actual net capacity of merchant vessels.[1]

Economic Value of the Canal

The expenditure of nearly $400,000,000 in the construction of the Panama Canal was large in comparison with the relatively small cost and larger traffic of the Suez Canal, yet there are few who do not justify the outlay. The economic and naval value of the Panama Canal is undoubted, although there may be a difference of opinion as to the extent of its value and as to the policy best suited to enhance its economic efficiency.

The economic value of the canal depends fundamentally upon the influence which it exerts over ocean steamship routes. Three of the greatest ocean routes described in Chapter V—the South American or Magellan, the South African and the Suez Canal routes—are directly affected by the canal; the canal itself creates a fourth trunk line route; and indirectly the canal may influence the volume of traffic which moves over the remainder of the eight principal ocean highways. It has also diverted the through traffic which was formerly transferred between the Atlantic and the Pacific by rail across the Isthmuses of Panama and Tehuantepec.

Traffic is routed via Panama chiefly because of the saving in distance and time which the canal makes possible. The distance from New York to San Francisco is 7,873 nautical miles shorter via Panama than by way of the Straits of Magellan; and the saving in distance between New York and Valparaiso, Chile, is 3,747 miles; Iquique, the great Chilean nitrate port, 5,139 miles; and Guayaquil, Ecuador, 7,405 miles. The distance from New York to Yokohama via Panama is 3,768 miles shorter than via the Suez Canal, and the saving on voyages to Shanghai is 1,876 miles; to Sydney, 3,932 miles; and to Wellington, 2,493 miles. Table No. 4 shows how much vessels proceeding from Liverpool, as a typical north European

[1] *See* E. R. Johnson, *Measurement of Vessels for the Panama Canal.*

port, save in their sailing distance; and the table also shows that ports on the Gulf of Mexico, such as New Orleans, save more in distance than the ports on the Atlantic seaboard of the United States.

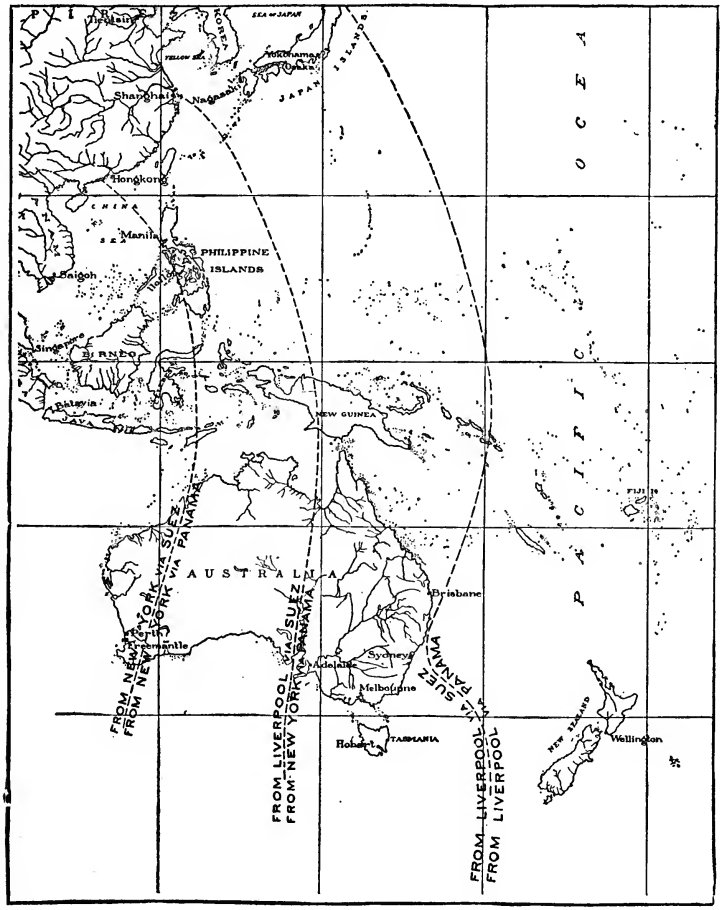
TABLE 4.—REDUCTION IN NAUTICAL MILES EFFECTED BY THE PANAMA CANAL.

To	FROM			
	New York	Savannah	New Orleans	Liverpool
San Francisco [1]	7,873	8,267	8,868	5,666
Honolulu [1]	6,610	7,004	7,605	4,403
Guayaquil [1]	7,405	7,799	8,400	5,198
Iquique [1]	5,139	5,533	6,134	2,932
Valparaiso [1]	3,747	4,141	4,742	1,540
Yokohama [2]	3,768	4,649	5,705	— 694[3]
Shanghai [2]	1,876	2,757	3,813	—2,852[3]
Hongkong [2]	— 18[3]	863	1,919	—4,172[3]
Manila [2]	41	922	1,978	—4,421[3]
Sydney [4]	3,932	4,598	5,444	— 150[3]
Wellington [1]	2,493	2,887	3,488	1,564[2]

[1] Difference between Panama and Magellan routes.
[2] Difference between Panama and Suez routes.
[3] Distance less via Suez route.
[4] Difference between Panama and Good Hope routes.

A glance at map No. 4 will serve to show even more clearly how the saving in distance as afforded by the Panama Canal is greater on shipments to and from American ports than on those which clear or enter at the ports of Europe. It is far in the Pacific Ocean that the "twilight" or competitive zone as between the Panama and Suez canals is reached. The map shows that the line connecting points equally distant from New York via Panama and Suez runs near Hongkong and Manila, while the line connecting the points equally distant from Liverpool via the two great canals runs west of Australia and the large ports of Japan. On shipments from the eastern seaboard of the United States a saving is effected via Panama to

practically all the leading ports of Australia, Japan, China and the Philippines; while steamers sailing from Liverpool continue to find the Suez route shorter to all Australasian and



Map 4.—Points Equally Distant from New York and Liverpool via the Panama Canal and Suez Routes

Oriental ports except those of New Zealand and the extreme northern ports of Japan and Siberia.

The saving in distance occasioned by the Panama Canal

brings about a corresponding saving in sailing time. An ordinary 10-knot steamer, when sailing from New York to Wellington via the canal rather than by way of the shortest competitive all-water route, saves 9.9 days; to Sydney, 15.8; Yokohama, 15.2; Valparaiso, 15.1; Honolulu, 27; Shanghai, 7.3, and San Francisco or other Pacific coast ports, 32.3 days. No routing consideration is more important than this reduction in time, for from it result more frequent steamship services, more rapid delivery and a reduction in operating costs. It varies greatly according to the reduction in distance between different ports and the speed of the vessel. It is less in case of fast passenger ships; but it should be remembered that a large part of the trade between the Atlantic and Pacific moves in ordinary freighters having a speed of from 9 to 12 knots per hour.[1]

Besides distance and sailing time other routing factors operate in favor of the Panama route. It reduces fuel cost as compared with the Suez, Magellan and South African routes, primarily because less fuel is needed to reach the ports which are tributary to the canal, but also because more American and native coals are available, the prices of which are lower than those charged for British coal at many of the coaling stations on the Suez and Magellan routes. The greater ease of obtaining cargoes on particular voyages, moreover, at times causes vessels to take the Panama route from outlying ports even though it is not the shortest route. Vessels which formerly transshipped cargoes by rail at Panama and Tehuantepec now use the canal because they avoid the difference between the transshipment costs and the canal tolls; and in so far as the canal encourages the establishment of direct steamship lines, it will discourage indirect shipments and the transshipment costs incident to them.

From the canal's influence over ocean routes other economic effects follow,[2] the full extent of which cannot as yet be ac-

[1] G. G. Huebner, "Economic Aspects of the Panama Canal," in *American Economic Review*, V, No. 4, p. 816, December, 1915.

[2] *See* E. R. Johnson, *The Panama Canal and Commerce*, chap. iii.

curately foretold. It has already begun to stimulate the domestic commerce of the United States. Table No. 5 shows that during the period from August, 1914, to January 1, 1917, 444 vessels carrying 2,391,159 tons of cargo passed through the canal in the coastwise trade, including the trade with the Hawaiian Islands. In September, 1915, before the coastwise vessels were diverted into the temporarily more lucrative foreign trade, five regular lines were operating in this trade, and three others rendered an intermittent service; and in addition numbers of tramp and privately owned vessels operated between the two seaboards. The commercial influence of this increase in water-borne freight affected both the interior and the seaboard sections of the country. A portion of the canal's traffic originated at and was destined to points located in the interior. The transcontinental railroads, moreover, reduced some of their freight rates because of increased water competition. In 1915 the Interstate Commerce Commission authorized them, subject to certain maximum limits, to charge lower rates to the Pacific coast terminals than to intermediate points not subject to the same degree of water competition [1] and it also regulated the back-haul rates from Pacific terminals to interior points so as to stimulate the shipment of freight to such points by way of the canal.[2] The effect of the canal is especially shown in that the special concessions granted in 1915 were withdrawn in 1916 after the vessels formerly engaged in the coast-to-coast trade were temporarily diverted to the foreign trade.[3] This diversion of the coastwise traffic induced the Commission in 1917 generally to enforce the long-and-short-haul clause as between the rates to Pacific terminals and the intermediate points.[4]

During the first year of operation the international traffic of the canal was abnormally small because the foreign commerce of the United States as well as of Europe with Pacific countries was greatly disturbed by war conditions. It was

[1] 32 *I. C. C. Reports*, 611, January 29, 1915.
[2] 34 *Ibid.*, 13, April 20, 1915.
[3] 40 *Ibid.*, 35, June 5, 1916.
[4] 46 *Ibid.*, p. 236, June 30, 1917.

not until the second year of the war that the foreign trade between the United States and Pacific countries recovered, and even then the canal was deprived entirely of the normal trade of the Teutonic powers, and the Pacific trade of many other European countries remained in a depressed condition. Table No. 5 shows that 48.54 per cent of the net tonnage during the period from August, 1914, to January 1, 1917, moved in the trade of the United States with foreign countries;[1] 12.5 per cent in the commerce of Europe with the west coast of South America and with the Far East and Australasia; 6.99 per cent between the Atlantic terminus of the canal and South and Central America; and 2.81 per cent of shipments over miscellaneous unspecified routes. During the first year of canal operation the coastwise traffic constituted 33⅓ per cent of the total, because it alone was in a normal condition, but during the entire period ending January 1, 1917, the coastwise tonnage comprised 18.88 per cent.

TABLE 5.—TRAFFIC THROUGH THE PANAMA CANAL OVER THE PRINCIPAL TRADE ROUTES, AUGUST, 1914, TO JANUARY 1, 1917.[2]

ATLANTIC TO PACIFIC

	Vessels	Canal Net Tonnage	Tons of Cargo Carried
United States coastwise	231	911,731	1,232,313
United States to South and Central America	217	694,270	924,378
United States to Far East and Australasia	292	1,245,254	1,957,745
Atlantic terminus of Canal to South America	177	309,534	193,774
Europe to west coast of North America	62	218,354	200,341
Europe to west coast of South America	89	249,894	188,957
Europe to Far East and Australia	10	66,541	68,981
Miscellaneous routings	51	154,584	232,107
Vessels in ballast	262	787,950	.. ...
Total	1,391	4,638,112	4,998,596

[1] Includes trade between Europe and west coast of North America.
[2] *The Panama Canal Record,* May 9, 1917, p. 464.

PACIFIC TO ATLANTIC

	Vessels	Canal Net Tonnage	Tons of Cargo Carried
United States coastwise	213	826,302	1,158,846
South and Central America to United States	392	1,388,723	2,324,840
Far East and Australasia to United States	61	267,251	379,395
South America to Atlantic terminus of Canal	188	333,813	277,563
West coast of North America to Europe	176	654,555	1,111,165
West coast of South America to Europe	225	729,279	1,164,716
Far East and Australia to Europe	18	115,458	98,427
Miscellaneous routings	33	104,480	138,857
Vessels in ballast	84	146,529	.....
Total	1,390	4,566,390	6,653,809

The operation of the canal has thus far indicated that the trade of the eastern and Gulf ports of the United States with the western coasts of South and Central America, British Columbia, Australia, New Zealand, Japan, China and the Philippines is making use of the Panama Canal. It has also shown that the trade between Europe and the west coast of the United States will normally constitute canal traffic; and that European countries are also interested in the canal in their trade with the west coasts of Central and South America and of Canada and with parts of the Far East and Australasia. The future effects of the canal on ocean freight rates and services are not fully disclosed in the canal's traffic to date, because ocean rates and services throughout the world have been readjusted largely with reference to war conditions. That the canal will stimulate the foreign trade of the United States

with Pacific countries by gradually leading to improved transportation conditions is confidently predicted. It should benefit the United States more than Europe in this regard, because it reduces the distance and time of voyages to a greater extent and extends its trade influence much farther into the Pacific for voyages from America than from Europe.

Inasmuch as the cost of transportation is but one factor affecting the volume of the foreign trade, it is not to be expected that the canal in itself will assure the commercial future of the United States. The commerce with the countries of the Pacific is also affected by foreign investments, banking and credit relations, the use of effective trade methods, the political control of markets by rival foreign countries, the maintenance of the open-door policy in China, and by the acquisition of a large American merchant marine.

The economic value of the Panama Canal also includes its influence on the merchant marine of the United States.[1] By providing an all-water route between the two seaboards of the United States the canal exerts a direct effect upon the coastwise merchant marine. Vessels have already been constructed and new lines have been organized for the domestic trade through the canal. Some of the vessels have been temporarily withdrawn from the coastwise trade because of the high ocean rates which the war caused in the foreign trade, especially in the European trade over the north Atlantic route, but there is little doubt that the tendency toward a larger coastwise marine will be resumed when ocean rates return to a normal level. The American merchant marine in the foreign trade will be affected by the canal only in an indirect manner, because this trade is open alike to foreign and to American vessels. Indirectly, however, because the canal increases the volume of available cargoes, it should exert a favorable influence on the country's deep-sea merchant fleet. Much depends, however, upon whether or not the present differences between vessels flying the American flag and vessels under foreign flags as regards operating costs continue in the future.[2]

[1] *See* E. R. Johnson, *The Panama Canal and Commerce*, chap. viii.
[2] *See* chap. xxx.

Through its influence upon ocean routes, and upon commerce and shipping, the canal will assist the industries of the United States. The opening of outside markets for manufacturers is of the utmost importance to the industries of the Central, Western and Atlantic Coast States. As the country's surplus of farm products which can readily find markets in Europe has been declining since the close of the nineteenth century, so the surplus of manufactures has been steadily growing. Many of these surplus wares cannot find an adequate foreign market in Europe but must seek a market in the newer regions of the world; and large quantities of these commodities are now moving through the canal from eastern factories and mills to the markets of the Pacific coast. The Eastern and Southern States, moreover, are shipping coal and cotton through the Panama Canal to Pacific markets. Similarly, the Pacific coast has lumber, grain, flour, wool, mineral and vegetable oils, salmon, fruits and other products which have already begun to move through the canal to the eastern markets of the United States, and especially to Europe, in appreciable quantities. Many industries, moreover, are brought nearer to their source of raw materials. Australian wool, for example, is beginning to be shipped directly to the textile mills of the East instead of indirectly by way of Great Britain; various sugar refineries depend upon Hawaiian sugar; Atlantic coast iron and steel mills are beginning to import ore from the west coast of South America; and southern and eastern coal is moving through the canal and may assist in solving the fuel problem of the Pacific coast. Numerous industries will be greatly benefited by the canal, but for reasons the same as those which influence commerce no sudden industrial revolution may be expected. Transportation is but one among the many forces which influence the growth of industries.[1]

As the trade of European countries is influenced to a less extent by the Panama Canal, so also it will have a smaller effect upon their industries. Europe's economic interest in the

[1] G. G. Huebner, "Economic Aspects of the Panama Canal," in *American Economic Review*, V, No. 4, p. 825, December, 1915.

canal is not, however, to be measured by the volume of European traffic which has thus far been routed via Panama, for the trade of Europe with the countries of the Pacific has been far below its normal volume since the outbreak of the great war. Europe's trade in the Pacific has, in the past, been larger than that of the United States, many manufacturing industries of Europe are closely dependent upon the foreign trade, and Europe's merchant vessels are greatly interested in the freight money which they can earn and the tolls which they must pay on their Panama voyages.

Naval and Military Value

Though its economic functions are paramount, the canal greatly increases the effectiveness of the navy of the United States. The saving in sailing distance and time noted in connection with ocean routes benefits naval as well as merchant vessels. Fleets and squadrons can now be transferred from one ocean to the other quickly and economically, and their ability to protect the two seaboards is greatly enhanced.

Warships can be sent to regions where they are most needed, at minimum cost and in the shortest time. A fleet concentrated at either entrance of the canal can, with a cruising speed of 15 knots, "reach the center of the Pacific coast in 9 days and the center of the Atlantic in 5 days." [1] The long dangerous trip made by the battleship *Oregon* from the Pacific coast to the West Indies at the opening of the war with Spain in 1898 need not be repeated by American warships, unless an enemy should succeed in seriously damaging the canal, and it is probable that the strong fortifications at the termini of the waterway will be able to keep an enemy at a safe distance.

[1] *Official Handbook of the Panama Canal*, 1915, p. 41.

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CHAPTER VIII

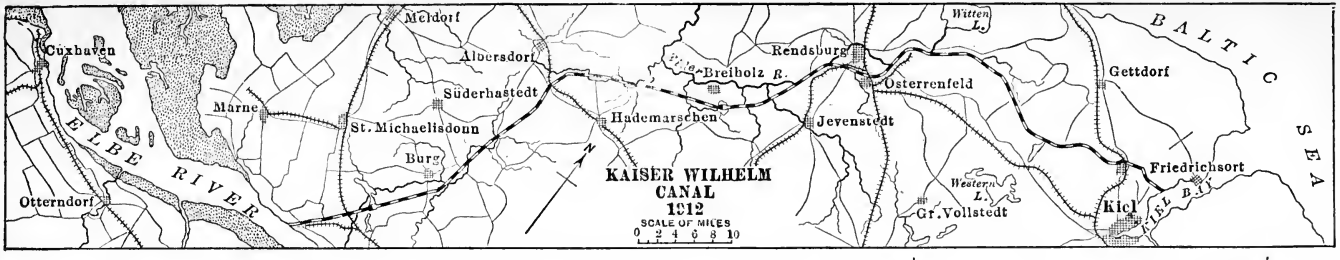
THE KIEL, CORINTH, AMSTERDAM AND MANCHESTER CANALS

The Kiel Canal, 96. Purposes and construction, 96. Traffic, 98. Tolls, 98. Cost of construction, 99. The Corinth Canal, 99. Construction, 99. Financial difficulties, 100. Traffic, 102. Tolls, 102. Inland maritime canals, 103. The Amsterdam or North Sea Canal, 103. The Manchester Ship Canal, 104. References, 108.

The Kiel or Kaiser Wilhelm Canal

The Kaiser Wilhelm Canal, which was begun in 1887 and completed in 1895, was constructed by the German Government for naval and commercial reasons. It connects the North Sea and Baltic seaboards of Germany by an ocean ship canal lying entirely within German territory, thereby greatly strengthening the German navy. The distance between the ports of the two seaboards of Germany is shortened from 300 to 400 nautical miles, and the dangerous passage through the Skager Rack is obviated. The distance between the Baltic and European ports, such as Amsterdam, Rotterdam and Antwerp, is reduced by nearly 237 nautical miles, the saving in distance to London and Dunkirk is nearly 239 miles, to Hull 181, to New Castle 107, and to Leith 84 miles.

The canal is 61 miles long and connects Kiel Bay with the mouth of the Elbe River at Brunsbüttel. (See map No. 5.) Its original dimensions were: depth, 29½ feet; bottom width, 72 feet; minimum surface width, 190 feet. It has no locks except those at the ends, which are necessary on account of the tides. In 1907 the Imperial Parliament authorized the reconstruction of the canal so as to accommodate the increased traffic and especially to make the canal available for naval and merchant vessels of largest size and greatest draft. The enlargements which were begun in 1909 and completed in 1914



CANAL SECTION WITH ENLARGEMENT NOW COMPLETED

Map 5.—Kaiser Wilhelm Canal, 1912 and 1914

increased the canal's minimum depth to 36.08 feet, its bottom width to 144.35 feet and its surface width to 334.64 feet, and greatly improved its equipment and facilities.

The waterway is used by a large number of small vessels and by barges; the traffic for the year ending March 31, 1914, consisted of 53,382 merchant craft, with a net tonnage of 10,349,929. The tolls and other dues in the calendar year 1913 amounted to $1,114,128. The receipts exceed the operating expenses excluding any allowance for interest on the investment. The traffic and receipts show a steady gain, the tonnage having increased 102 per cent and the canal's revenues 96.8 per cent during the decades ending in 1914 and 1913 respectively. The merchant traffic of the canal consists mainly of short-distance business. The principal eastbound shipments move from the ports of the Elbe and the German North Sea ports, from the Dutch, Belgium and Rhine ports, and from the ports of Great Britain to the German Baltic, the Finnish, the Danish and the Swedish ports and to the local cities on the canal and the upper Eider River. The principal westbound shipments originate at the German Baltic, Finnish, Swedish, Danish and upper Eider ports.

The tolls charged at the Kiel Canal before the beginning of the war in Europe were based upon the net register tonnage of the vessels navigating the canal and were graded according to their size or tonnage. The regular tolls ranged from 0.60 mark per net register ton for the first 400 net tons to 0.20 mark per net register for each ton above 800 net tons, subject to a minimum of 10 marks per vessel.[1] Reduced tolls are granted to vessels engaged in the through German coastwise traffic; also to vessels employed in local traffic along the canal or between a point on the canal and a port on the Elbe or the Baltic; and to vessels not exceeding 50 tons net engaged in the local coastwise traffic. In the winter months, from October to March, inclusive, all tolls are 10 per cent higher than those mentioned above.

Other charges collected at the Kiel Canal are towage charges

[1] Information regarding tolls charged during the war not available.

for vessels that do not pass through under their own power; pilotage in case a special pilot is required; and unimportant miscellaneous charges for various special services that are sometimes rendered by the canal administration. Various port charges (harbor dues, demurrage, wharfage, etc.) at a number of ports located on the canal are collected by the canal administration, but these charges are not directly connected with the operation of the canal.

The original cost of the Kiel Canal was $37,128,000 (156,000,000 marks), and no effort has been made to levy tolls sufficiently high to provide for interest charges and for the amortization of the investment. As was stated in the report on *Panama Canal Traffic and Tolls*:[1]

> The Kiel Canal, unlike the Panama and Suez Canals, does not connect regions of vast traffic, nor does it greatly shorten ocean routes. The tolls are low because the traffic does not warrant heavier charges. For the military services of the canal no charges are made. The canal has fully justified its construction. Indeed it has been of such naval and commercial value to Germany that the Government is now [1913] spending 233,000,000 marks ($55,454,000), much more than the amount of the original investment, in doubling the size and capacity of the waterway.

The Corinth Canal

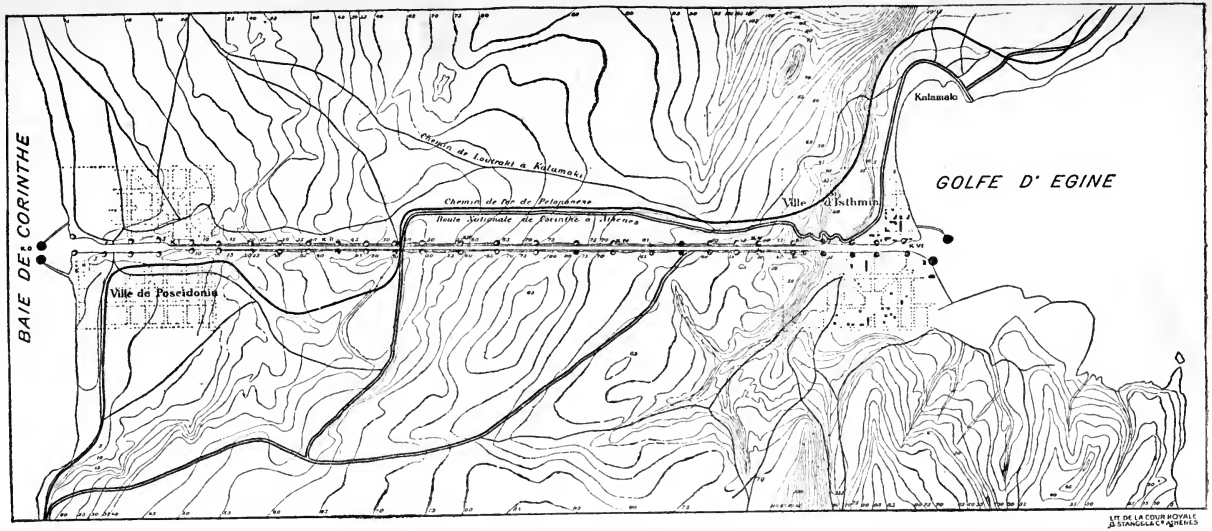
The Corinth Canal begun in 1882 and completed in 1893, at a cost of $13,750,000, is a waterway nearly four miles long, connecting the Gulf of Corinth or Lepanto, with the Gulf of Aegina. (See map No. 6.) The original concession was obtained by a French company in 1881, but in 1889 it was transferred to a Greek company. It was constructed to save the trip around Morea, the southern peninsula of Greece, and it shortens the distance between the Adriatic and Black seas about 185 miles, and between the Strait of Messina and the Black Sea 95 miles. The bottom width of the canal is only 68 feet 11 inches; the depth, 26 feet 3 inches, and through

[1] E. R. Johnson, *Panama Canal Traffic and Tolls*, 116.

the rock cut, 326 yards long, the surface of the canal is only 80 feet 8 inches wide, although the cutting reaches a maximum depth of 260 feet. In 1907 a new company, the Nouvelle Société du Canal de Corinthe, which was formed by the old company's bondholders, took over the canal at foreclosure sale, and in 1911 this company, in the hope of increasing the waterway's traffic, began to enlarge its width.

The original construction of the canal was more expensive than was anticipated, because the rock to be excavated was of extreme hardness. The original French company had a capital stock of 30,000,000 francs ($5,790,000). Later it endeavored to issue 60,000 six-per-cent bonds of 500 francs each, but less than one-half were sold and the banking institution that had agreed to raise additional funds for the company and also the canal company itself were forced into bankruptcy. The Greek company which took over the property in 1890 had a capital of five million francs, divided into 10,000 shares of 500 francs each ($965,000), and issued 46,667 six-per-cent first mortgage bonds of 500 francs each ($4,503,000) for purchase and construction purposes. Improvements became necessary soon after the canal was opened for traffic, so that by 1895 an additional expenditure of 1,153,000 drachmas ($207,540) had been made. In 1899 a further expenditure of 700,000 drachmas ($126,000) was authorized, and in 1902 and 1903 smaller sums were expended in repairing various canal tugs, and these were classed as supplementary works instead of being charged to operation. The total cost of the canal to 1907 was over 60,000,000 francs ($11,580,000), but when it was sold at foreclosure sale at that time the old company obtained but 430,000 drachmas ($77,400). The estimated cost of the improvements begun by the new company in 1911 is 800,000 francs ($154,000).

The financial difficulties of the Corinth Canal are due not only to construction costs but also to the failure of its traffic to come up to expectations. Although the desirability of constructing a canal across the Corinth peninsula was felt as long ago as A.D. 67, when Nero began work on such a waterway,



Map 6.—Corinth Canal

it was found after the completion of the Corinth Canal that most ships of large size prefer the old open-sea route because the navigation of the canal is somewhat difficult. The currents of air through the canal trench are strong; and high tide in the Gulf of Corinth does not come at the same time as in the Gulf of Ægina, thus causing tidal currents through the canal.

Although an annual traffic of 3,948,000 net tons had been estimated, the actual traffic did not reach a half million net tons until 1906. Since then its traffic has increased rapidly. In the calendar year 1913, before the European War began, the canal was navigated by 4,069 vessels having a net tonnage of 1,449,991 tons, and its total receipts were 766,828 francs ($147,998). In 1914 a heavy decline occurred, and, although there was a partial recovery in 1915, the traffic then aggregated but 3,587 vessels with a net tonnage of 930,883. The company's annual revenues in 1915 amounted to 484,200 francs ($93,451).

The tolls now charged by the New Corinth Canal Society are those imposed in its tariff of 1909 plus an increase of 20 per cent, which became effective June 14, 1916. The tolls are based upon the net tonnage of vessels measured in accordance with the system laid down by the International Tonnage Commission of Constantinople or the Greek law of March 26, 1908. They vary according to the type of vessel and the routes over which they operate. The tariff of 1909 provides that cargo steamers, for example, engaged in the coasting trade or in the trade of the Ægean Sea-Black Sea region shall pay tolls as follows: 1 to 200 tons, 1.00 franc per ton; 201 to 500 tons, 0.70 franc for every ton above 200 tons; and 501 tons and above, 0.10 franc for every ton above 500. If the same cargo-vessel operated to and from Adriatic ports these amounts would be 1.00, 0.30 and 0.10 francs respectively; and if it operated to and from Mediterranean ports they would be 0.60, 0.20 and 0.10 francs respectively. Each of these tolls is now 20 per cent higher than stated in the tariff of 1909. The tolls on mail steamers, yachts and war vessels are similarly graded

territorially and according to the size of the vessels, but they average higher; and those on sailing vessels adhere to the same plan, but average lower. In each case allowances ranging from 20 per cent to 30 per cent are deducted if the entire net tonnage of vessels belonging to a shipowner should amount to at least 40,000 tons in one year.

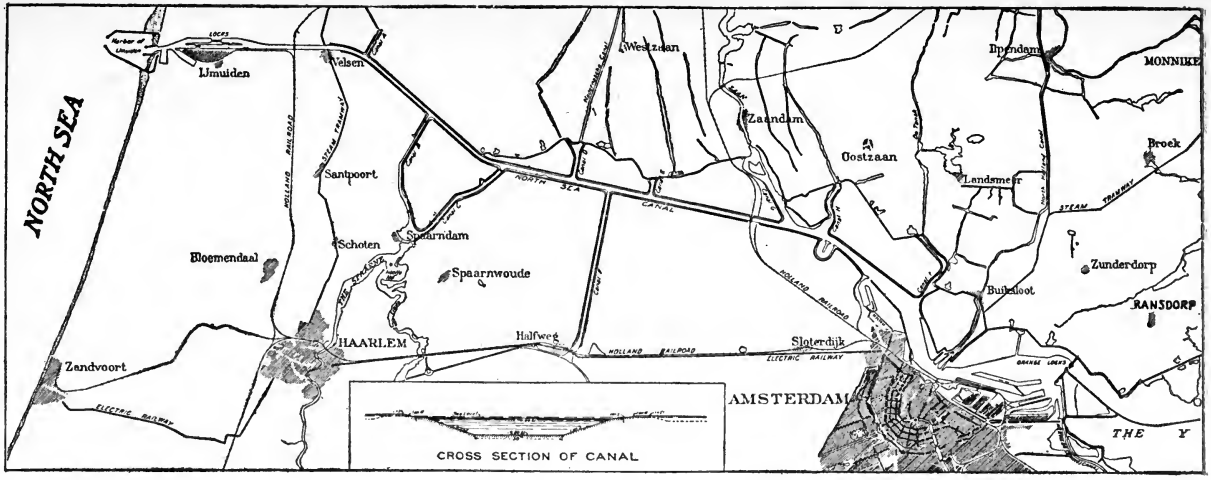
Inland Maritime Canals

The interoceanic canals that have been described were constructed to shorten ocean routes. Of even greater importance to the trade of their particular port and country are the Amsterdam and Manchester canals, whose purpose is to extend ocean routes from the seaboard inland. The canal from Ymuiden, on the North Sea, to Amsterdam, was opened for traffic in 1876. (See map No. 7.) Its length is 16.7 miles, and it has a depth of 32.1 feet, and a minimum bottom width of 164 feet. The tendency of the trade of Holland has been to concentrate at Rotterdam, the great port near the mouth of the Rhine; but by being provided with the North Sea Canal for large ocean vessels, with a waterway 12 feet in depth connecting the city with the Rhine, and with numerous other canals for barges and small steamers, Amsterdam has been able to increase its trade slowly, but steadily and to the unquestionable advantage of the industries and trade of Holland. The sea traffic passing the North Sea locks at Ymuiden in 1900 comprised 5,223 vessels with a gross tonnage of 5,566,000; and in 1911 the corresponding figures were 4,650 vessels of 7,968,000 gross tonnage. The total traffic passing the North Sea locks, including fishing boats and smaller craft, increased from 9,870 vessels of 5,659,035 gross tonnage in 1900 to 20,606 vessels of 9,876,231 gross tonnage in 1913, and to 28,041 vessels of 7,037,828 gross tons in 1915.

The Amsterdam Canal was originally constructed by a private company to which the State and City of Amsterdam gave financial aid. Tolls were then charged, but when, in 1883, improvements became necessary and maintenance costs proved

to be heavier than was anticipated, the Government of Holland purchased the waterway. Tolls were reduced in 1885, and entirely abolished in 1890 on vessels bound for Amsterdam and Zaandam. In 1893 all tolls were abolished, and the canal became a free waterway. The only charges collected by the State are for pilotage as at any Dutch port. The municipal and private charges incurred such as those for towage, harbor dues, and rentals or charges for the use of wharves, warehouses, loading and unloading appliances and for terminal services at Amsterdam are apart from the use of the canal and the outer port of Ymuiden. The Amsterdam Canal is the only one of the large ocean-ship canals upon which no tolls are charged. Its extensive use is so essential to the commercial welfare of Holland, and particularly of Amsterdam, that the collection of tolls would probably defeat its purpose.

The Manchester Ship Canal carries ocean ships inland 35½ miles and raises them by means of four locks to an elevation of 58½ feet above sea level. (See map No. 8.) This waterway, completed in 1894 at a cost of $75,000,000, terminates inland in an extensive system of docks, and Manchester has been made a seaport with a commodious harbor. The depth of the canal has been increased from 26 to 28 feet at low water and its minimum bottom width is 120 feet. The cost of the canal far exceeded the estimates, and for some years the traffic did not grow so fast as was expected; but in 1899, at the end of five years, 5,182 vessels, registering 1,395,702 tons, and carrying 2,778,108 tons of cargo, passed the locks. In 1904, at the end of 10 years, the traffic comprised 3,917,578 tons of freight, and since then it has grown to 5,434,000 tons in 1915. The gross receipts from all sources also rose from £418,043 in 1904 to £757,268 in 1915, and its net income from £177,748 to £466,218. The canal was constructed and improved by a semi-public corporation at a total cost of about $85,000,000, to which the City of Manchester contributed $25,000,000 in the form of a loan. The company is now so organized as to give representatives of the City of Manchester a majority of the board of directors.



Map 7.—Amsterdam Canal

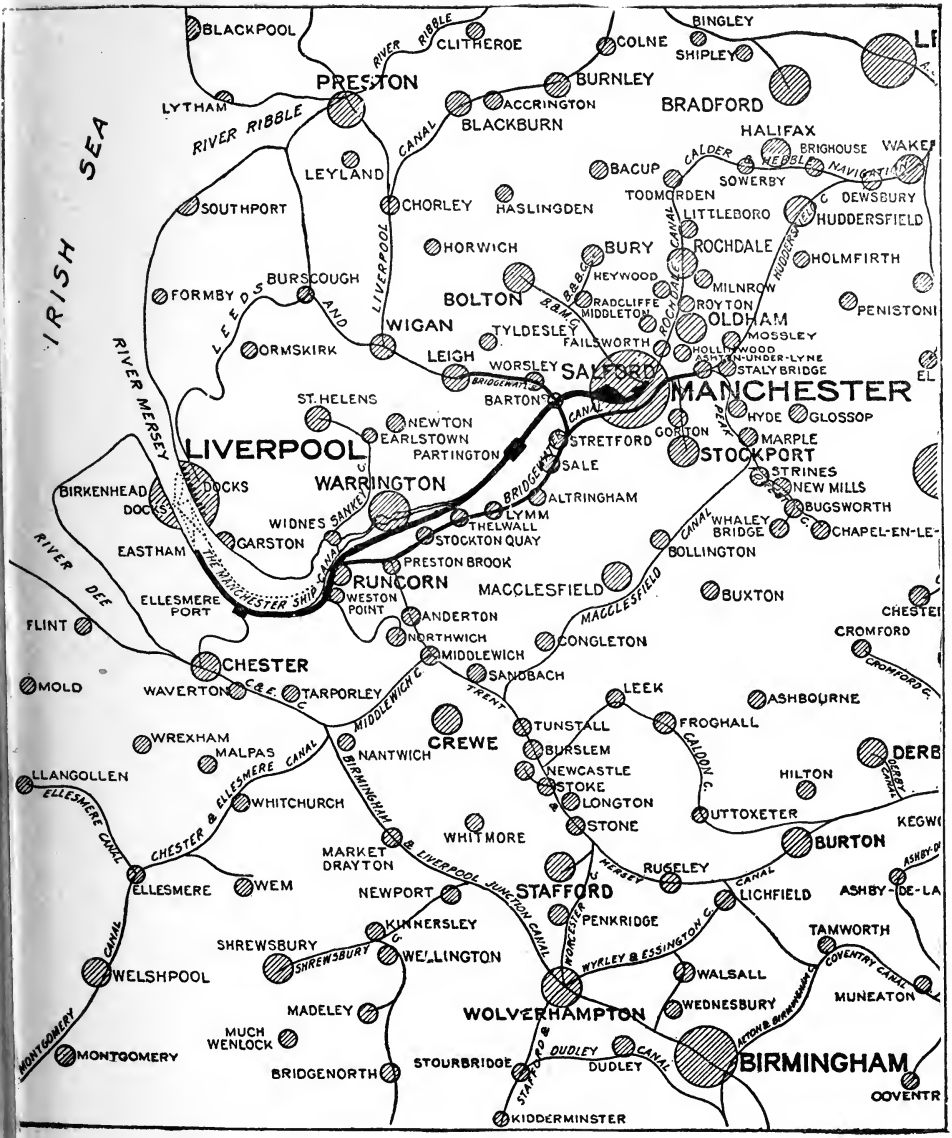
The Manchester Ship Canal Company charges tolls on both vessels and cargoes. Vessels are required to pay so-called "ship dues" based on their net register tonnage and upon any space occupied by deck cargo as defined in the merchant shipping acts of Great Britain. They vary according to the port to or from which the vessel is bound, and also according to the section of the canal in which the vessel loads or discharges. Vessels on long voyages are required to pay higher tolls than those bound to or from nearby countries, and those passing through the entire length of the canal to and from Manchester in canal section C are charged lower tolls than those loading or discharging at points located in canal sections A or B. The ship dues are graded partly in accordance with what the traffic will bear, and partly to encourage the trade of Manchester and the use of the extensive terminal facilities there provided. Vessels loading and discharging exclusively certain kinds of commodities are quoted "differential ship dues," which are one-half the regular charges. Before the outbreak of the war in Europe the regular ship dues ranged from 2d to 1s.3d per net register ton, but since then they have been increased. The ship dues to and from Manchester ranged from 2d to 7½d until the war occasioned an increase.[1]

The principal charges of the Manchester Ship Canal Company are the tolls on cargo payable by consignees and shippers. These tolls vary for different commodities and also according to the section of the canal in which the cargoes are loaded or discharged.[1] They too have been gradually increased since the beginning of the war.[2] Tolls on cargo are practicable at this canal because it is a terminal waterway at which freight is actually handled, thus permitting of a checking up of manifests.

Other charges collected by the Manchester Ship Canal Company are towage charges in case tugs are provided by the

[1] In a notice dated March 26, 1917, the normal ship dues were advanced 25%; cargo tolls and wharfage rates, 15%; loading and discharging, warehouse, etc., charges, 25%.

[2] For schedules of tolls see E. R. Johnson, *Panama Canal Traffic and Tolls*, pp. 126-27 and appendix VI.



Map 8.—Manchester Canal and Connections

company; loading and unloading charges when the company supplies the labor required for loading and discharging vessels; wharfage or "quay porterage" charges for handling freight over the wharves; and storage charges in case cargoes are warehoused or stored.

The net income of the Manchester Ship Canal Company during many years was insufficient to pay all of the interest due on the debentures held by the City of Manchester, but in later years net income advanced steadily and by 1915 the company's surplus was judged sufficient to authorize the payment of dividends to shareholders. Not only has the canal's traffic reached a paying level, but its tolls were increased in March and again in November, 1915. The port of Manchester is at present suffering from a congestion of traffic. Even while the financial condition of the canal company was less promising it was recognized that the construction expenditure had been justified by the volume of traffic which the canal handled, by the influence which it exerted over railroad freight rates to and from the coast ports, and by the commercial prosperity which it brought to Manchester. It enabled the inland city of Manchester not only to maintain itself as an industrial center, but to become the fourth port of England.

By the canalization of the Clyde, the Thames, the Elbe, the Weser, the lower Rhine, the Scheldt, the Delaware and Columbia, and other rivers; and by opening channels across the bars obstructing the entrance to Liverpool, New York, New Orleans, Galveston, Portland, and many other important ports, a great expansion of commerce has been made possible, and the usefulness of the ocean as the world's trade highway has been largely enhanced. The improvement of the approaches to ports by constructing a canal, canalizing a river, or dredging a submerged channel, is, however, a part of the work of providing terminals adapted to the requirements of present-day commerce.

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CHAPTER IX

THE MEASUREMENT OF VESSELS AND TRAFFIC

Kinds of vessel tonnage, 110. Displacement tonnage, 110. Dead-weight tonnage, 112. Gross tonnage, 114. Net tonnage, 118. Cargo tonnage, 122. Long, metric, and short tons, 122. Measurement tons, 122. Relationship between various kinds of tonnage, 123. Documented and undocumented vessels, 123. References, 124.

In describing the various types of vessels, and in discussing ocean transportation, frequent use must be made of the words "ton" and "tonnage," and, in order to avoid confusion and error, it is necessary to keep clearly in mind the several meanings in which these terms are employed. Tonnage may refer either to the size of the vessel or to the amount of the ship's cargo; accordingly, there are two distinct kinds of tons: the vessel ton and the cargo ton. Each of these two kinds of tons is used with several different meanings.

Vessel tonnage is of four kinds: displacement, dead-weight, gross and net. Each has a definite meaning and each has its particular uses.

Displacement Tonnage

The *displacement tonnage* of a vessel is its weight, and is equal to the weight of water displaced by the ship when afloat. Unless the term is especially qualified the displacement of a merchant vessel is its weight when its crew and supplies are on board, but before any fuel, cargo or passengers have been taken on. This is the vessel's displacement "light," and is to be distinguished from its displacement "loaded," which is its weight when fully loaded to its maximum draft or deep-load line. A merchant vessel's "actual" displacement during a particular voyage is its weight when

loaded to any given draft and varies with the amount of fuel and cargo and the number of passengers on board.

In rating war vessels the term "normal" displacement is commonly used. Its meaning varies in the different countries, for, although their rules commonly include the vessel's full complement of officers, men and their belongings, and all general equipment, armament and machinery, they differ as to the allowance of stores, fuel oil, coal and water on board when its displacement is normal.[1] There is, likewise, no uniformity among the various countries as to the meaning of a war vessel's "light" displacement. Its "full-load" displacement, on the contrary, is calculated with substantial uniformity throughout the world, and corresponds to the usual meaning of a merchant vessel's displacement "loaded." A naval vessel's "actual" displacement, of course, refers to its weight with everything on board when equipped for a particular voyage, and varies from day to day.

The displacement of a vessel is expressed in tons of either 2,240 or 2,204.62 pounds avoirdupois, according to whether the English or metric system of measurement prevails. In the United States the displacement tonnage may be found by dividing the contents in cubic feet of the part of a vessel's hull that is below the water line by 35, because a cubic foot of sea water weighs 64 pounds or one-thirty-fifth of a ton of 2,240 pounds avoirdupois. The cubical contents is accurately determined at the time of the vessel's construction by means of special mathematical rules.[2] Since a vessel is not a parallelopiped, i. e., not box-shaped, its cubical contents cannot be determined by a simple multiplication of length, breadth and depth. The marine architect is obliged to determine the ship's "block coefficient" or "coefficient of fineness," which is the ratio of the actual contents of the submerged portion of the vessel's hull to the contents of a parallelopiped of the same length, breadth and depth. When this coefficient is known, the

[1] *See* E. R. Johnson, *Measurement of Vessels for the Panama Canal*, 104.

[2] *See* Thomas Walton, *Know Your Own Ship*, chap. x.

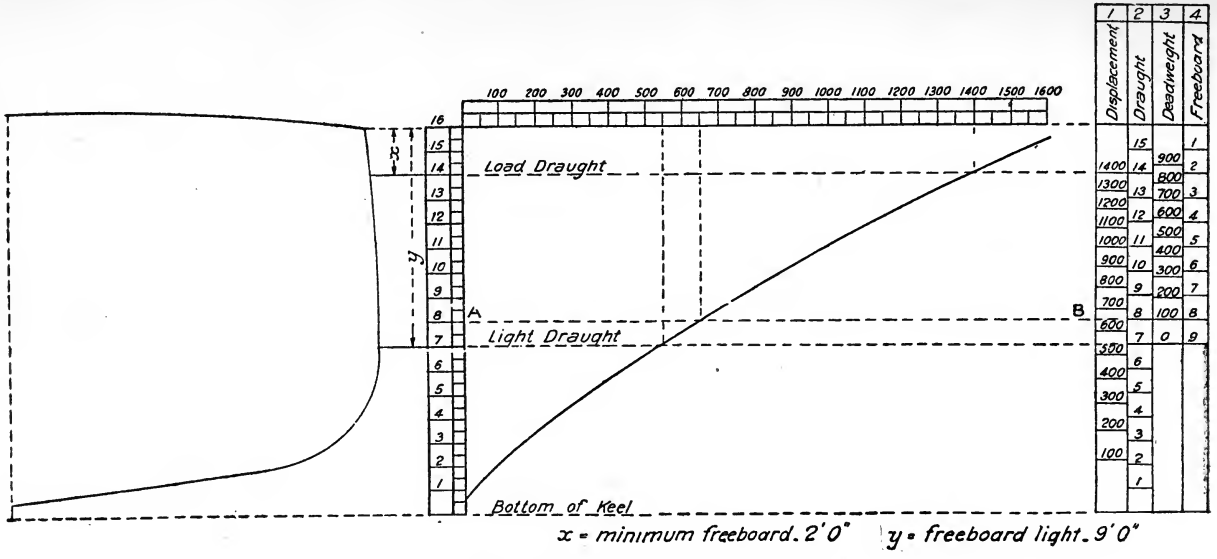
vessel's displacement may be determined by multiplying the product of its length, breadth and depth by its coefficient of fineness and dividing that product by 35. The coefficient may vary anywhere from 0.8 in case of a full-shaped slow freighter to 0.4 in case of a racing yacht.

When determining a vessel's displacement "light" and "loaded," shipbuilders usually prepare a "displacement curve" and scale, such as is shown in diagram on page 113. Knowing the draft of his vessel, a glance at the ship's displacement curve and scale will tell the captain substantially what the actual displacement of his vessel is on any given voyage.

The displacement tonnage of merchant vessels is chiefly used in their construction. It is also of use in their loading and operation, for the difference between displacement light and displacement loaded indicates the maximum weight of cargo, passengers and fuel that the ship may take on board; and the difference between displacement light and the tonnage of the ship's actual displacement indicates the weight of whatever the ship contains at any given time other than crew and supplies. The "normal" displacement of naval vessels has the additional use of serving as the basis for officially rating or expressing the size of war craft; and the actual displacement of war ships, other than transports, colliers, supply ships and hospital ships serves as the basis upon which such vessels pay tolls at the Panama Canal

Dead-weight Tonnage

The carrying capacity of a merchant vessel is sometimes expressed in terms of its *dead-weight tonnage*, which represents the maximum weight of cargo, passengers and fuel that it is able to carry when loaded to its deep-load line. It is the equivalent of the difference between the vessel's displacement "light" and its displacement "loaded" and is determined by subtraction of the one from the other. The actual dead-weight on board at any given time will, of course, vary from voyage to voyage, but can be readily determined with sub-



Displacement Curve and Scale

stantial accuracy from the displacement curve and scale mentioned in connection with displacement tonnage. Knowing the draft to which his vessel is loaded, the captain can read the actual dead-weight on board from the curve and scale which is prepared when the vessel is constructed. (See diagram, p. 113.)

Dead-weight tonnage is expressed in terms of either the long ton of 2,240 pounds or the metric ton of 2,204.62 pounds. In ocean navigation it serves as the usual basis for the charter rates paid when vessels are operated on time charters. It is also of use in the loading and transportation, in vessel-load lots, of certain heavy, bulky commodities, such as coal and iron ore, and in the construction of vessels designed for such services; for, knowing the amount of fuel needed to operate over a particular route, the dead-weight tonnage discloses to the master of the vessel the maximum weight of cargo that may be shipped. The term dead-weight tonnage is ordinarily not used in connection with express steamers, combination passenger and freight vessels, or vessels operated in a regular freight line service; for vessels of that type are rarely loaded to their deep-load line, and the prime consideration at the time of their construction is seldom the attainment of maximum capacity for heavy or so-called "dead-weight commodities."

Gross Tonnage

The *gross tonnage* of a merchant vessel is its total measured cubic contents expressed in "tons" of 100 cubic feet or 2.83 cubic metres.[1] The actual cubical contents of any particu-

[1] This method of stating gross-register tonnage dates from 1854. To secure a uniform practice in measuring and registering vessels, the British Government, in 1852, adopted a method of measuring the cubical capacity of hulls that Mr. George Moorsom had worked out. The Admiralty, not wishing to change the statistics of the tonnage of the British marine more than was necessary, instructed Mr. Moorsom to submit a plan of applying his method in such a way as to cause a minimum change in the existing registry of ships. Mr. Moorsom found that the total registered tonnage of the British merchant marine

lar space in a vessel is measured in accordance with prescribed methods or formulæ which were originated by Mr. George Moorsom, of England, and were first incorporated in the British measurement law of 1854, and later in the measurement rules of all the leading maritime countries of the world. The lack of uniformity in gross tonnage results, not from the methods of measurement employed, but from differences as to the number of vessel spaces that are entirely exempted from measurement. Every country has its own national measurement rules which specify the portions of a vessel that are excluded from gross tonnage, and at the two great interoceanic canals—the Suez and Panama—special rules differing widely from the national measurement rules of any of the maritime countries are enforced. Since certain spaces are excluded from measurement it, moreover, follows that in practice the gross tonnage of a vessel does not represent its entire enclosed cubical contents.

The national gross-tonnage rules of the United States which are applied by the surveyors of the Customs Service and interpreted by the United States Commissioner of Navigation provide that the following spaces in a vessel shall be exempted from measurement:

1. Sheltered places or superstructures with openings at the sides or ends. This exemption was the result of the way in which the rules were interpreted by the United States Commissioner of Navigation on September 5, 1914.

2. So-called shelter-deck spaces, i. e., spaces beneath a "shelter deck" with approved "tonnage openings." This ex-

as then registered was 3,700,000, and he found that by the application of his system of measurement the total capacity of the hulls of the British fleet was 363,412,456 cubic feet. "If," said he, "the real total capacity in cubic feet is divided by the total registered tonnage the dividend will be the figure by which the capacity in cubic feet must be divided in order to produce this registered tonnage." The ratio of existing tonnage (3,700,000) to Moorsom's figures for capacity (363,412,456) was 98.22, but for the purpose of easy calculation the British Government adopted a divisor of 100 instead of 98.22, and this figure was incorporated in the Merchant Shipping Act of 1854.

emption was not allowed prior to March 16, 1915, and is also the result of the interpretation of the national measurement rules by the Commissioner of Navigation. Both of these exemptions had for many years been granted under the measurement rules of Great Britain, and had also been accepted in Germany since 1895, when the endeavor to induce Great Britain to measure all enclosed superstructures and shelter-deck spaces was abandoned.

3. Passenger accommodations in tiers of superstructures over the first tier above the upper deck.

4. Hatchways up to one-half of 1 per cent of the vessel's gross tonnage.

5. Galleys, bakeries, toilets and bath houses above decks.

6. Spaces above decks occupied by the ship's machinery or for the working of the vessel.

7. "Light and air and funnel space over the engine and boiler room to the extent that such space is above the upper deck, or the 'shelter deck' when it is taken as the uppermost full-length deck, except when special request is made by the shipowner to have the space measured." [1]

8. "Domes and skylights, companionways (except portion used as smoking room), and ladders and stairways located in exempted spaces." [1]

9. Double bottoms for water ballast since March 2, 1895, and other spaces adapted only for water ballast since February 6, 1909.

10. Open spaces occupied by deck loads.

Enclosed spaces other than those especially exempted are measured in accordance with the Moorsom rules which were adopted in the United States in 1864, and the cubic contents in cubic feet divided by 100 represents the official gross-register tonnage of an American vessel. It understates a vessel's real gross capacity as also does the gross register tonnage determined in the principal foreign maritime countries.

[1] E. R Johnson, *Measurement of Vessels for the Panama Canal*, 58.

(Rt. Jan. 1, 1940) Cat. No. 1434

Certificate No. _____

THE UNITED STATES OF AMERICA

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION

Port of _____

_____, *191*

CERTIFICATE OF ADMEASUREMENT

(Section 4167, Revised Statutes, and Measurement of Vessels, 52 edition)

I CERTIFY that an admeasurement has been made of the[1] _____

called the _____ of _____,

which was built in the year 19 _____ at _____, State of _____;

that she has a _____ head, a _____ stern,

_____ decks, and _____ masts;

that her register length is _____ TS feet,

her register breadth is _____ TS feet,

her register depth is _____ TS feet,

her height under spar deck is _____ TS feet,

and that her tonnage is as follows:

	TONS	100THS
Capacity under tonnage deck[2]		
Capacity between decks, above tonnage deck		
Capacity of inclosures on the upper deck, viz:		
Forecastle[3], bridge, poop, break, roundhouses, side houses,		
chart house, radio house, excess hatchways, light and air spaces[4],		
GROSS TONNAGE		
Deductions under Section 4153, Revised Statutes, as amended:		
Crew space, master's cabin, steering gear,		
anchor gear, boatswain's stores, chart house,		
donkey engine and boiler, radio house,		
storage of sails, propelling power[5] (),		
TOTAL DEDUCTIONS		
NET TONNAGE		

The following-described spaces, and no others, have been omitted, viz:

Forepeak[6], aft peak[6], open forecastle, bridge, poop, anchor gear,

steering gear, donkey engine and boiler, light and air, wheel house, galley,

condenser, water closets, cabins[7]

[8] The net tonnage and official number are marked on the main beam, and the name and home port are marked as required by law.

_____
Collector of Customs.

I agree to the above description and admeasurement.

_____

[1] Insert "American steam screw," "British ship," or as case may be.

[2] Name and give tonnage of each compartment in double bottom and of each peak tank used other than for water ballast, which is included herein.

[3] Carry total of all inclosures to spaces at end of next line.

[4] These spaces are to be added to tonnage by permission of the Commissioner of Navigation only.

[5] Insert in parentheses the tonnage representing actual machinery space used in ascertaining propelling power.

[6] Water ballast other than double bottom.

[7] Passengers' cabins and staterooms on a deck which is not a deck to the hull.

[8] This line may be erased for a foreign vessel.

[9] To be signed by the owner, master, or other person who may attend the admeasurement for the owner.

Form 1.—Certificate of Admeasurement

A special code of measurement rules was therefore formulated for the Suez Canal by an International Tonnage Commission in 1873, with a view to arriving at a gross tonnage that discloses real gross capacity. The Suez rules do not include all enclosed spaces in a vessel's gross tonnage, but result in a figure considerably above the gross register tonnage provided for in the measurement rules of Great Britain, Germany, or the United States as at present interpreted. The special gross tonnage rules in accordance with which all vessels navigating the Panama Canal are measured were based largely upon the principles that controlled in framing the Suez Canal rules, but certain changes were necessary so as to adapt them more closely to the many variations in present-day vessel construction, and so as to ascertain a gross tonnage that even more closely approximates real gross capacity.[1]

It is in terms of gross-register tonnage that the official mercantile marine statistics of the United States are published, and merchant vessels the world round are officially listed in terms of their gross- and net-register tonnages and their principal dimensions. In some foreign countries, moreover, the gross-register tonnage of merchant vessels is utilized as the basis for certain ship subsidies. Indeed, the classification of American vessels under the mail contract act of 1891 depends in part upon gross-register tonnage. It also serves as a basis for vessel dockage charges at some ports. The primary purpose of computing gross tonnage, however, is to use it as the basis for determining net tonnage.

Net Tonnage

The *net tonnage* of merchant vessels was originally intended to represent their total cubic contents available for cargo and passengers, expressed in tons of 100 cubic feet or 2.83 cubic metres each. It is ascertained by deducting from a vessel's gross tonnage the cubic contents of certain spaces that are

[1] E. R. Johnson, *Measurement of Vessels for the Panama Canal*, 225-242.

specified in the measurement laws and rules of the various maritime nations or in the measurement rules applicable at the Suez and Panama canals. As gross-register tonnage varies throughout the world and understates a vessel's gross capacity, so also does the official net-register tonnage of a vessel as determined in the maritime countries vary and understate its real net capacity for carrying cargoes and passengers.

The deductions made from gross-register tonnage in order to arrive at net-register tonnage under the national measurement rules of the United States are as follows:

1. Spaces occupied by the propelling machinery and fuel.
2. Spaces occupied by or appropriated to the use of the crew, officers and master subject to the navigation laws, which specify that a minimum crew space varying from 72 to 120 cubic feet and from 12 to 16 square feet of floor space per man must be provided on American vessels.
3. Spaces used exclusively for the working of the helm, capstan and anchor gear, unless they are located above decks and consequently have been excluded from gross tonnage.
4. Spaces used for keeping charts, signals, and other instruments of navigation.
5. Spaces occupied by the donkey engine and boiler if located below decks and connected with the main pumps of the vessel.
6. Spaces required for boatswain's stores.
7. Galleys, bakeries, toilets, and bath rooms for the accommodation of the officers and crew, when situated below decks.
8. Spaces on sailing vessels used for the storing of sails not exceeding $2\frac{1}{2}$ per cent of the gross tonnage.

The principal deduction in the case of all vessels propelled by engines is the space occupied by propelling machinery and coal bunkers or fuel oil tanks. While the engine and boiler rooms can be readily measured because they occupy fixed spaces, an obvious difficulty is encountered in measuring the fuel spaces which in many instances are variable. Many vessels, for example, are fitted with movable partitions that may

be shifted so as to enlarge or contract either the coal bunkers or the cargo holds as is desired on a particular voyage. A general or average rule for deducting propelling machinery and fuel spaces is therefore needed. Under the national measurement rules of the United States the so-called "percentage rule" is applied to some vessels and the so-called "Danube rule" to others. The former provides that if the space occupied by the engine and boiler rooms of a screw-propelled vessel is above 13 per cent and under 20 per cent of the vessel's gross tonnage, the combined deduction for propelling machinery and fuel spaces shall be 32 per cent of the gross tonnage. The corresponding percentage rule for vessels propelled by paddle wheels is that if their propelling machinery occupies over 20 per cent and under 30 per cent of the gross tonnage, a deduction of 37 per cent of a vessel's gross tonnage shall be made. The Danube rule, on the contrary, is applied to vessels the engine and boiler rooms of which do not come within the 13 to 20 or 20 to 30 per cent limits. It provides for a deduction of the actual spaces occupied by the propelling machinery plus 50 per cent in the case of vessels propelled with paddle wheels, and plus 75 per cent in the case of screw-propelled craft.

A large proportion of all oceangoing vessels are constructed so as to come within the percentage rule, because it usually results in a larger deduction than the Danube rule provides and in a deduction of more space than is actually occupied by propelling machinery and fuel bunkers. The net-register tonnage of American vessels is consequently in many instances an understatement of actual tonnage, and not all vessels are treated alike. The same is true of Great Britain, where the rule originated in 1854 and is still applied. The rule is also followed in Germany and many other foreign countries. Being based upon gross-register tonnage the understatement of tonnage as registered in the United States and in other shipping countries is further increased by the exemption from measurement of various spaces which are in fact available for cargo or passengers.

As the special gross tonnage rules applied at the Suez and Panama canals were formulated so as more nearly to disclose the real gross capacity of vessels, so also were the rules governing deductions of spaces not available for cargo or passengers devised with a view to disclosing the real net capacity. Especially was this the purpose in promulgating the "Panama Canal measurement rules," which differ from the Suez rules in some respects. Both the Panama and Suez rules differ from the official tonnage rules of the principal countries in that they discard the percentage rule for deducting machinery and fuel spaces, and substitute the Danube rule with the option of the actual measurement of such spaces in the case of vessels equipped with fixed fuel bunkers. The average deductions made from gross tonnage in arriving at net tonnage during the first 13 months of Panama Canal operation was 30 per cent. The average deduction from gross tonnage under the Suez rules is usually 28 or 29 per cent. In contrast with this the deductions under the national measurement rules of Great Britain and Germany average 39 per cent, of Norway 37 per cent, of Russia and Denmark 41 per cent, and of France 42 per cent. The deduction under the American registry rules, before the recent liberal interpretation of the rules governing superstructures and shelter decks, was about 34 per cent. The deductions from gross tonnage made in accordance with the American measurement rules are further shown in the American measurement certificate reproduced in Form 1.

The net-register tonnage of merchant vessels is highly important alike to their owners, to governmental authorities who administer the navigation laws, and to commercial concerns of various kinds. Net-register tonnage is the basis for tonnage taxes and other tonnage dues the world round; and commercial charges, such as those for towage, dockage and wharfage, are also at times based on net-register tonnage. The official statistics of entrances and clearances published by the United States and most foreign governments are stated in terms of net-register tonnage. Time charter rates, when not based on dead-weight tonnage, are based on net-register

tonnage; and tolls at some canals, such as the Kiel and Manchester canals, are based in part on this form of tonnage. The incentive to understate net-register tonnage in the various maritime countries has consequently been strong, and when some of them follow that policy it is difficult for the others not to do likewise. The net tonnage ascertained in accordance with the Suez and Panama Canal measurement rules are important, because they serve as the principal basis for the tolls charged at these waterways. Suez net tonnage is the basis for the vessel tolls paid by both merchant and naval craft to the Suez Maritime Canal Company, and Panama net tonnage is the basis of the tolls paid by merchant vessels and by army and navy transports, colliers, supply ships and hospital ships at Panama.

Cargo Tonnage

Quite distinct from the different kinds of vessel "tons" and tonnage mentioned above are the various forms of cargo "tons" and tonnage in terms of which the amount of cargo on board an ocean vessel and its cargo capacity are expressed. Cargo tonnage may be stated either in weight or measurement tons. A weight or avoirdupois ton, moreover, may be a long ton of 2,240 pounds, a metric ton of 2,204.627 pounds, or a short ton of 2,000 pounds. The long ton is of chief importance in the overseas trade of the United States in so far as goods are shipped as weight cargo, and the metric ton in the trade of such foreign countries as adhere to the metric system. The short ton, although commonly used in the shipment of freight by rail in the United States, is only occasionally used in the overseas trade.

Much ocean freight, however, is not shipped by weight but in units of measurement tons, usually of 40 cubic feet each. Light package freight is frequently shipped as "measurement cargo," which means that its quantity is stated in measurement tons. It is a paradoxical fact that a vessel may carry a larger number of "tons" of light package freight than of heavy bulk cargo.

TABLE 6.—COMPARATIVE TONNAGE STATEMENT

VESSEL	Nationality	NATIONAL REGISTER TONNAGE		AMERICAN REGISTER TONNAGE		PANAMA TONNAGE		SUEZ TONNAGE		Tons Cargo Capacity
		Gross	Net	Gross	Net	Gross	Net	Gross	Net	
Kentuckian	American	6,515[2]	4,086[2]	6,582	4,084	7,041	4,891	6,569	4,875	10,000
Santa Rosalia[1]	"	5,409[2]	3,488[2]	5,834[3]	4,392[3]	5,865	4,530	5,580	4,452	.....
Virginian	"	([4])	([4])	7,914	5,077	9,836	7,398	.....	.....	12,000
Finland	"	([4])	([4])	12,222	7,447	13,122	8,485	.....	.....	.....
Kroonland	"	([4])	([4])	12,241	7,483	13,676	8,551	.....	.....	.....
American	"	([4])	([4])	5,650	3,555	5,903	4,153	.....	.....	8,000
Honolulan	"	([4])	([4])	6,570	4,068	7,825	5,715	.....	.....	10,000
Isthmian	"	([4])	([4])	5,404	3,463	5,677	3,975	.....	.....	6,000
Floridian	"	([4])	([4])	6,930	4,311	7,245	5,105	.....	.....	10,000
Arizonan	"	([4])	([4])	8,723	6,687	8,989	6,864	.....	.....	12,000
Hawaiian	"	([4])	([4])	5,670	3,555	5,903	4,193	.....	.....	8,000
Good Hope	British	3,618	2,308	3,639	2,639	3,908	2,831	.....	.....	.....
Victoria	"	5,967	3,692	5,922	3,428	6,860	4,566	.....	.....	.....
Oswald	"	5,185	3,341	5,091	3,152	5,427	3,750	.....	.....	.....
Kirkdale	"	4,732	3,047	5,352	3,469	5,359	4,011	5,101	3,929	.....
Quilpue	"	3,669	1,959	3,775	2,128	3,922	2,231	.....	.....	.....
Jutlandia	Danish	4,874	3,121	5,208	3,907	5,371	3,932	.....	.....	.....
Stella	Dutch	2,818	1,792	2,802	1,749	2,884	1,917	.....	.....	.....
Toyooka Muru	Japanese	7,375	4,595	7,178	5,266	7,741	5,556	.....	.....	.....
Grena	Norwegian	6,371	3,487	7,341	5,073	7,368	5,073	.....	.....	.....
Terrier	"	5,122	3,163	5,578	3,994	5,495	4,032	.....	.....	.....
San Francisco	Swedish	3,745	2,858	4,130	2,956	5,298	4,001	.....	.....	.....

[1] Formerly British. [2] British register tonnage. [3] British register tonnage retained after transfer to flag of the United States. [4] See column "American Register Tonnage."

The relationship between the various kinds of vessel and cargo tonnages cannot be fairly expressed in terms of an average, because it is influenced greatly by the many different types of vessels operating on the high seas, by the kinds of cargo carried by them, and by the particular gross and net measurement rules in accordance with which the register tonnages are ascertained. A general idea may, however, be obtained from Table No. 6, page 123, which contains concrete data for a number of typical cargo- and passenger-carrying vessels.

American shipping includes both "documented" and "undocumented" craft. All self-propelled and sailing vessels operating under the American flag are legally required to be listed and documented by the United States Government at the office of the Commissioner of Navigation. Barges, flatboats and like craft not self-propelled or fitted with sails are not required to be documented unless they carry passengers or are engaged in the trade with contiguous foreign countries; and harbor craft, such as lighters and floats, are likewise not required to be documented. Documented vessels engaged in the foreign trade and the whaling industry are "registered"; those employed in the inland and coastwise commerce are "enrolled"; and those of less than 20 tons measurement are "licensed."

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CHAPTER X

OCEAN PORTS AND TERMINALS

Foreign trade of principal seaports of world, 126. Foreign trade of principal American seaports, 127. Ports grouped according to location, 129. Roadstead ports, 129. Natural bay ports, 129. River ports, 130. Combination of river and bay ports, 130. Ports grouped according to administration, 130. Public ports, 131. Semi-public ports, 132. Public trust ports, 134. Private ports, 134. Port administration abroad, 135. Ocean terminal facilities, 136. Commercial and industrial facilities, 136. Waterfront lengths, 136. Docks and wharves, 138. General freight-handling facilities, 139. Special freight-handling facilities, 141. Coördination of terminal facilities, 141. References, 143.

THE ports and terminals at which the trunk line and branch line routes of ocean carriers terminate, and at which they ship and discharge their cargoes, are essential parts of the world's ocean transportation system. Twenty of the leading ocean ports are listed in Table 7. New York, London, Hamburg, Liverpool and Antwerp are close rivals, but each of the remaining ports listed conducts a large volume of trade. Rotterdam, Amsterdam and Hongkong, moreover, have been important ocean ports for many years, but are not listed because statistics of the value of their overseas trade are not available. The trade of the United States with many other foreign ports, such as Yokohama, Shanghai, Rio de Janeiro, Santos, Valparaiso, Havana and Melbourne is also of great importance although their total overseas trade is smaller than that of the ports listed. A large number of American ports similarly are not included in the table.

TRADE OF PRINCIPAL OCEAN PORTS

The value of the foreign trade of the principal ocean ports of the United States is shown in Table 8. Each of the three

seaboards has its ports, some of which have been keen rivals for many years; and in turn the ports of the north Atlantic as a group compete with the rival group of ports located on the Gulf of Mexico for the foreign trade of the central West; the south Atlantic ports compete with the Gulf ports for the foreign trade of the interior of the South; and the ports of the Pacific seaboard, to some extent, compete with the ports of both the Atlantic and Gulf seaboards.

TABLE 7.—FOREIGN TRADE OF PRINCIPAL PORTS OF THE WORLD

PORTS	Year	Imports	Exports	Total
London	1914	$1,232,066,000	$695,994,000	$1,928,060,000
Liverpool	1914	809,998,000	836,009,000	1,646,007,000
Hull	1914	199,658,000	130,484,000	330,142,000
Manchester	1914	164,204,000	93,153,000	257,357,000
Southampton	1914	91,118,000	94,699,000	185,817,000
Hamburg	1913	1,084,325,000	817,275,000	1,901,600,000
Bremen	1913	370,608,000	211,421,000	582,029,000
Antwerp	1912	623,164,000	588,181,000	1,211,345,000
Marseille	1913	389,639,000	365,733,000	755,372,000
Havre	1913	357,924,000	258,795,000	616,719,000
Genoa	1913	199,780,000	103,061,000	302,841,000
Trieste	1913	175,997,000	161,430,000	337,428,000
New York	1914	1,040,380,000	864,546,000	1,904,926,000
Galveston	1914	12,245,000	255,767,000	268,012,000
Buenos Aires	1914	200,833,000	140,438,000	341,271,000
Calcutta	1914	229,336,000	317,628,000	546,964,000
Bombay	1914	202,834,000	225,395,000	428,229,000
Alexandria	1914	91,121,000	116,106,000	207,227,000
Sydney	1913	151,897,000	151,376,000	303,273,000
Singapore	1914	151,883,000	121,650,000	273,211,000

In the fiscal year 1916 the exports shipped through the ports of the Atlantic seaboard were valued at $3,089,147,000; through those of the Gulf seaboard $485,404,000; and through those of the Pacific coast $273,194,000. The imports received at these ports were valued at $1,562,180,000, $110,154,000 and $262,976,000 respectively. The remainder of the country's

foreign trade was handled through the coastwise districts of the Great Lakes and northern border, the Mexican border and the interior. The foreign trade conducted via the northern border and lake points has grown rapidly, and in 1916 aggregated $729,424,000.

The value of the exports of the Atlantic ports increased 190.9 per cent during the decade 1906 to 1916; those of the

TABLE 8.—FOREIGN TRADE OF PRINCIPAL AMERICAN OCEAN PORTS

PORTS	Year	Imports	Exports	Total
Portland and Falmouth, Me.	1913	$1,815,000	$6,932,000	$8,747,000
Boston and Charlestown	1913	146,599,000	69,553,000	216,152,000
New York	1914	1,040,380,000	864,546,000	1,904,926,000
Philadelphia	1914	96,483,000	65,182,000	161,665,000
Baltimore	1913	32,895,000	116,474,000	149,369,000
Newport News	1913	2,261,000	13,596,000	15,857,000
Norfolk and Portsmouth	1913	2,112,000	15,611,000	17,723,000
Wilmington., N. C.	1913	3,571,000	19,911,000	23,482,000
Charleston	1913	4,774,000	13,512,000	18,286,000
Brunswick	1913	119,000	14,668,000	14,787,000
Savannah	1913	4,462,000	58,235,000	62,697,000
Mobile	1914	6,915,000	50,806,000	57,721,000
Pensacola	1913	1,698,000	19,643,000	21,341,000
New Orleans	1914	89,382,000	193,840,000	283,222,000
Sabine	1914	1,922,000	24,135,000	26,057,000
Galveston	1914	12,245,000	255,767,000	268,012,000
San Francisco	1914	67,111,000	63,375,000	130,486,000
Puget Sound	1913	51,474,000	62,548,000	114,022,000
Portland, Ore.	1913	3,204,000	12,577,000	15,781,000

Gulf ports 31.7 per cent; and those of the ports on the Pacific seaboard 168.6 per cent. During the same decade the imports received at these groups of ports increased 60.3 per cent, 104.4 per cent and 296.6 per cent respectively. Though the imports handled at the Gulf ports have gradually advanced, much of the larger share of their overseas traffic consists of

exports. The depression in the cotton export trade during the first two years of the European War reduced the exports of the Gulf ports abnormally. The decade ending with the fiscal year 1914, which affords a better basis of comparison, shows an increase of 69.1 per cent in the value of the exports handled at these ports. A large amount of coastwise shipping, accurate statistics of which are not available, is also conducted at each of the ports listed in Table 8, but it constitutes domestic trade, and most of it is handled by vessels distinct from those engaged in the overseas commerce. Foreign vessels are excluded from the coastwise trade by law.[1]

Ports Grouped According to Location

Ocean ports may be conveniently classified in two ways according (1) to their general location and (2) the manner in which they are owned and administered. When grouped according to their location, ocean ports are of four different types: the roadstead, the natural bay, the river port, and the combination of river and bay port. As examples of the roadstead type, Boulogne (France), Dover (England), and the Port of Los Angeles (California) may be mentioned. These ports are located on the ocean shore, where no natural enbayment provides quiet water for anchorage. Harbors are created at such ports at government expense, by the construction of costly breakwaters, and by the dredging of the artificially enclosed basins.

The Puget Sound ports, and San Francisco, Pensacola, and Boston, in the United States, Southampton in England and many other cities similarly located are examples of natural bay ports. In some cases, as, for instance, at Mobile, Ala., the bay on which the city is located has to be dredged to accommodate the deep-draft vessels now employed in ocean commerce. The city located on a bay of ample area, and of thirty feet and more in depth at low tide, can provide a terminal for handling ocean traffic at a relatively small ex-

[1] Foreign vessels temporarily admitted by act of Oct. 16, 1917, as a war measure.

pense; but the trade of a city so located will generally be less than that handled at a city located near the mouth of a large river, because the river affords connection with a large inland area of production and consumption. The river port usually has a better traffic territory than the bay port has.

London, Hamburg, Bremen, Rotterdam, Antwerp, Philadelphia, New Orleans, and Portland are conspicuous examples of river ports, and this partial list shows that most of the great seaports are located on rivers. The cheapening of rail transportation, and the increasing efficiency of the railroad, are giving the roadstead and bay ports greater possibilities, by enabling them to compete with river ports over a wider traffic area; but the extensive improvements of inland waterways and the technical development of inland navigation are likewise building up the trade of the river ports.

A city located as New York is, at the head of a bay and also on a large river, has the most favorable location possible. The maritime commerce of New York, coastwise and foreign, exceeds that of any other port of the world. The traffic territory of New York city extends west nearly to the Missouri River, and when the city is connected with the Great Lakes by a waterway that will accommodate barges carrying 2,500 to 3,000 tons of cargo, and is thereby given better facilities for inland navigation than those now possessed by Rotterdam and Hamburg, New York will be able to take far greater advantage, than is possible under present conditions, of the development of the vast inland tributary territory.

Ports Grouped According to Administration

Classified according to their ownership and the authority that administers them, ocean ports may be grouped as follows: (1) public ports which are owned and administered directly by states or municipalities; (2) semi-public ports, some of the properties of which are owned privately and others by states or municipalities, and at which a varying degree of public control is exercised; (3) public trust ports which are owned by and administered through public trusts composed of non-

salaried representatives of the municipality and of the various commercial organizations and interests centered at the ports; and (4) private ports that are owned and primarily administered by private transportation, terminal, or industrial concerns.

The public administration of American ports is divided among the Federal Government, the States and the municipalities. The Federal Government through the Corps of Engineers of the War Department establishes the official pierhead lines beyond which harbor structures may not be erected, and in various ways, as is fully described in Chapters XXIV and XXV, regulates the shipping conducted at the ports, but it has not undertaken the actual detailed administration of American ports on the mainland of the United States. The Federal Government, in many instances, also dredges and maintains the harbor basin and channel from the sea, but the public administration of ports is left to the States and municipalities.

Public Ports

Some of the ports of the United States are *public ports*. At the port of New Orleans the major portion of the water frontage is owned by the State of Louisiana, and all privately owned frontage is subject to expropriation at the pleasure of the State Board of Commissioners. The port is administered by three public administrative bodies—the State Board of Commissioners of the Port of New Orleans, or so-called Dock Board, which operates the public wharf system of New Orleans and has general control over the port; the State Board of Commissioners of the New Orleans Levee District, which constructs and maintains levees, and by acquiring river frontage provides the Dock Board with space for wharves and wharf sheds and the Public Belt Railroad with a portion of its right of way; and the Public Belt Railroad Commission, a municipal body, which operates the city's belt line railway.

San Francisco is another example of an American public

port, the waterfront from the Presidio on the north to the Union Iron Works on the south being owned by the State of California. The port is administered directly by the State through the Board of State Harbor Commissioners. The ports of Los Angeles, San Diego, and Oakland, in California, are examples of public ports at which all or most of the water frontage is owned by the municipalities and where port administration is vested in the municipal authorities.

Semi-Public Ports

Semi-public ports are far more numerous in the United States than public ports. At nearly all the larger ocean ports, other than the public ports just mentioned, the ownership of the water frontage and wharves is partly private and partly public. Private ownership is vested in railroads, navigation companies, dock or terminal companies, and industrial concerns; and public ownership either in the municipalities or in the States. The relative extent of private and public ownership varies widely at the great ports.[1] The degree of public control also varies, but some public control over private port facilities is exercised at every semi-public port, some water frontage is publicly owned and municipalities or States provide some of the wharves.

Three general types of administration prevail at these ports:

1. Many small ports and some of the larger ocean ports are administered by municipal departments. At the port of New York, for example, there is a Department of Docks and Ferries which under the direction of a Commissioner of Docks employs about 2,600 engineers, draughtsmen, surveyors, clerks, auditors, inspectors, foremen, mechanics, artisans, ticket agents, deckhands, watchmen and other port employees. The department has direct charge of the municipal docks and fer-

[1] *See* U. S. Bureau of Foreign and Domestic Commerce (G. M. Jones), *Ports of the United States* (1916); and U. S. Bureau of Corporations, *Transportation by Water in the United States*, part III, "Water Terminals" (1910).

ries, leases some municipal wharf property to private concerns for periods of not exceeding 10 years, and is empowered to regulate all privately owned wharf properties.

The port of Philadelphia is similarly administered by a Department of Wharves, Docks and Ferries, at the head of which is a director who is appointed by the mayor, subject to ratification by the Select Council. In the case of Philadelphia, however, there is also a State Board of Commissioners of Navigation with jurisdiction over the licensing and control of pilots, the rules for the anchorage of vessels, and the general supervision outside of Philadelphia of the Delaware River waterfront. The extent to which the city of Philadelphia owns water frontage and wharves is less than in New York, but progress in this direction has been made since 1907, when the present administrative machinery was created.

2. Some American ports, such as Baltimore, Md., and Portland, Ore., are administered by municipal harbor boards or commissions. Instead of regarding port administration in the light of street paving, street cleaning, sewer construction or other municipal functions, a special governing body is created. Sometimes the board is merely an advisory body, and sometimes, as at Baltimore, it has but one active member and differs but slightly from a municipal department.

3. Some of the semi-public ports of the United States are administered directly in whole or in part by state harbor boards. The port of Boston is administered by a special state board known as the Directors of the Port of Boston. Other ports in Massachusetts are administered in part by a State Board of Harbor and Land Commissioners. Connecticut similarly has a State Rivers, Harbors and Bridges Commission; and in Rhode Island a State Board of Harbor Commissioners has general supervision over ports, and a second state board, the Rhode Island Harbor Improvement Commission, is concerned with the improvement and development of water frontage for public terminals at Providence, East Providence and Pawtucket. State boards with a limited con-

trol over ports are also to be found at Philadelphia and the Delaware River ports of Pennsylvania, at Charleston, S. C., Portland, Me., and Wilmington, N. C. It should be noted that the state boards in some instances administer the ports only in part, separate municipal departments or boards having also been organized as at other semi-public ports.

Public Trust Ports

Some of the ports of the United States are administered in part by so-called independent port authorities,[1] which are modeled after the "public trusts" found at so many British ports. Separate municipal corporations, independent in all respects from the municipal governments of the port cities, have recently been created by the legislatures of various states. Under the Washington port district act of 1911 an independent "port district" managed by an elective Port Commission has been established at Seattle for the improvement and administration of the port of Seattle. A similar independent port commission was established at Gray's Harbor, Washington, under the act of 1911, at Jacksonville, Fla., in 1912, and at Tampa, Fla., in 1913. The port of Portland, Ore., is primarily administered by a municipal Commission of Public Docks, but its work is supplemented by an independent authority known as the "Port of Portland," which was created by the state legislature in 1891 to levy taxes independently of the city and to improve the harbor and the Willamette and Columbia rivers from Portland to the sea. Later it was also charged with the construction and operation of a state drydock and with the maintenance of a pilotage and towage service.[2]

Private Ports

Many of the smaller ocean ports of the United States, such as Port Arthur and Texas City, Tex., are private ports in

[1] U. S. Bureau of Foreign and Domestic Commerce (G. M. Jones), *Ports of the United States*, 33, 34.

[2] *Ibid.*, 287.

that their facilities are provided almost entirely by private interests, which also administer them with but a minimum of public control. Some of the larger ocean ports may likewise be practically classed as private ports, for ports such as Norfolk, Galveston, Savannah, Charleston and Pensacola have no publicly owned terminals of commercial importance.

Port Administration Abroad

In Great Britain many of the larger ocean ports are of the public-trust type. The Mersey Docks and Harbor Board, for example, administers the port of Liverpool. It derives its powers from Parliament and is composed of non-salaried representatives of the various trade organizations and interests centered at Liverpool. The trust raises the capital required to improve and administer the port by levying various port and dock charges, and by borrowing money upon the security of its authorized charges. Similar public trusts have been created at London and Glasgow. Bristol and Preston, England, are examples of the public municipal ports of Great Britain. Southampton, England, and Cardiff, Wales, are the principal British private ports, the former being developed and largely controlled by the London and Southwestern Railway and the latter by the Butte Docks Company, a subsidiary of the Cardiff Railway Company. The central government, or Parliament, has not aided in the construction of harbors, except to carry out certain works for naval purposes. The port of Dover, for instance, has been made a harbor that will accommodate large naval and merchant ships, and Parliament has borne a part of the expense.

On the continent of Europe, the public type of port prevails. In France the central government is the authority. In Germany and other west European countries most of the ports are public ports, administered by the municipalities or other local governments through especially elected port authorities or through the regularly constituted officials of the municipalities. In some instances, as at Antwerp, Belgium, the owner-

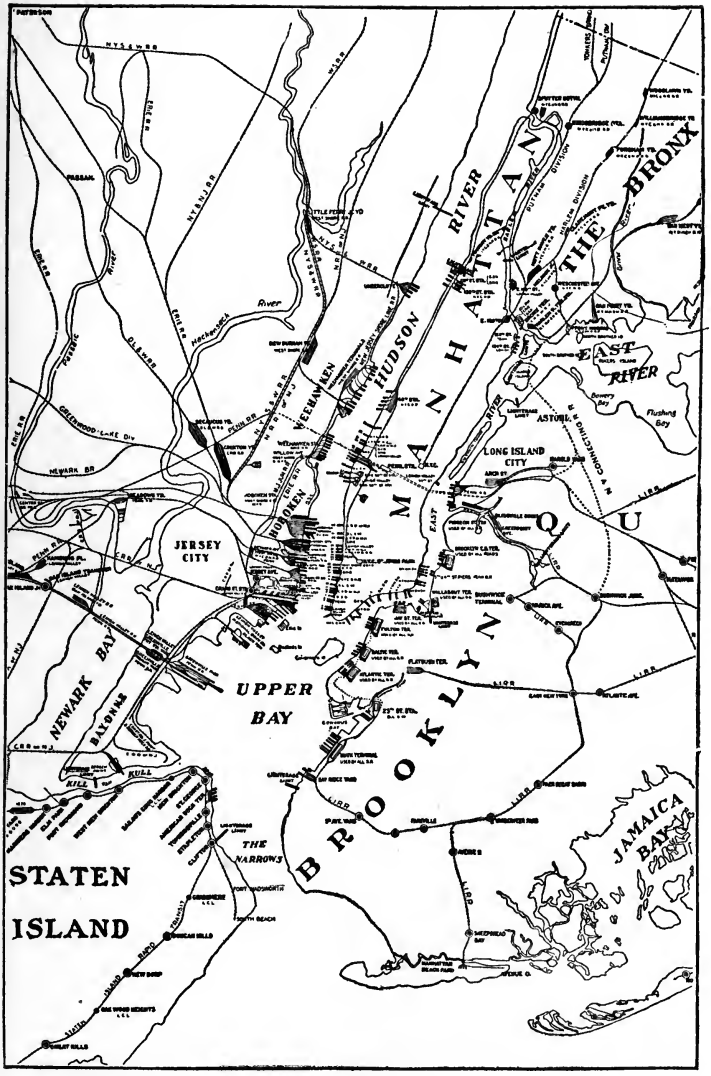
ship and administration of the port have been mainly municipal, but the state owns portions of the river front and shares in the administration of the port.

There is some agitation in various parts of the United States in favor of establishing certain "free ports." At these ports foreign goods could be imported and held within certain prescribed areas, there be manufactured or converted into finished wares, and then be reëxported without paying import duties and without hindrance by the usual customs restrictions.

Ocean Terminal Facilities

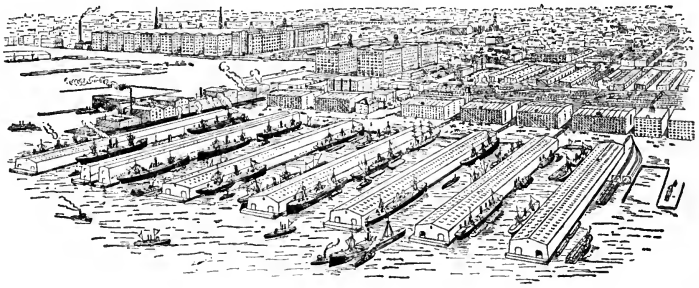
Though ocean ports are best classified according to their general location and the manner in which they are owned and administered, a description of them is not complete without mention of the terminal facilities provided by them. Ocean terminals usually perform two quite distinct functions, commercial and industrial, a fact which complicates the facilities they need to provide. The commercial facilities of a port have to do mainly with the handling and shipment of the through traffic which is brought to them from many outlying points by rail or by inland and coastwise water carriers for exportation, and of traffic that is imported from foreign countries for transshipment to outlying destinations. Ocean ports must also provide facilities to serve the local industries situated at the port, or in the city or territory adjacent to the harbor. To perform this industrial service the waterfront, so far as practicable, needs to be connected with local industrial and mercantile plants, and to provide storage and warehouse facilities for the assembling and storage of exports and imports that flow from and to the local industries.

This twofold service that ocean ports need to perform, together with the volume of foreign trade handled by them, and the frequent use of their facilities by coastwise and inland as well as by ocean carriers, causes many ocean terminals to extend over large areas. Waterfront lengths are likely to be misleading as a basis for the comparison of



Rail Terminal Facilities in Greater New York

ports, because some portions of water frontage obviously have less commercial value than others, yet they convey a general picture of the size of the large ocean terminals. The total waterfront at the port of New York, for example, has a complete length of 921 miles, at Boston 141, Baltimore 120, Seattle 113.9, New Orleans 41.5, Philadelphia 37, Norfolk 36, and Galveston and San Francisco each 8 miles. The effective frontage in use at some of these ports is of course less extensive, but it is also surprisingly large. At New York, most of the ocean traffic is handled at a frontage of about 125 miles, at Boston 12 miles, Baltimore 18, Seattle 6, New Orleans 15, Philadelphia 6, and Norfolk 13 miles or less.



Bush Terminals, Brooklyn
From a photograph by E. E. Rutter.

The terminal facilities at ocean ports include, first of all, the necessary "docks and wharves." These terms are frequently used interchangeably, but technically the latter refers to the structures over which the vessels receive or deliver their cargoes, and the former to the harbor space alongside of the wharves in which the vessels are placed when loading or discharging. Wharves may be provided either on longitudinal shore bulkheads sometimes known as "quays," or on "piers" projecting from the shore into the harbor. The docks at most American ports are open spaces dredged alongside the longitudinal wharves or between piers. In the latter case the docks are commonly known as "slips." At some European ocean ports, however, some of the docks are closed-in

because of the great difference in tide levels. London, Liverpool and Bremerhaven are notable examples of "closed dock" ports, many of their docks being excavated in the dry to the required depth and cut off from the tidal waters by locks. At certain European ports, such as Glasgow, Hamburg and Copenhagen, moreover, although the docks are without locks, some of them are "tidal docks" excavated in the dry with open entrances leading to the navigable channel.

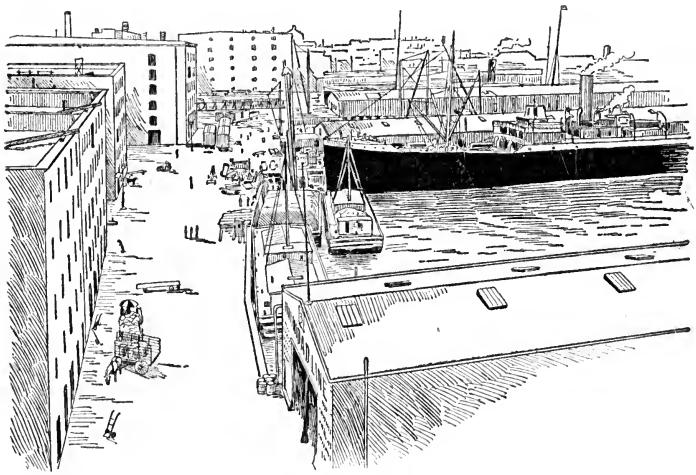
Some wharves are used for the handling of the passenger traffic, but many more are freight cargo wharves, some of which are used solely for general cargoes and others for special traffic, such as coal, lumber, oil, and sugar. Many are

Piers of New York Dock Company (in foreground)
From a photograph by Edwin Revick.

covered with "sheds" or warehouses for the protection, assembling and handling of cargoes. Bonded warehouses are also provided at American ports for the storage of imported wares to be held in bond until they are reëxported or the import duties on them are paid.

The freight-handling facilities provided at the wharves, in the harbor, or on board the vessels constitute a second port essential. They are of two general types: (1) general appliances for handling miscellaneous cargoes, and (2) special facilities for handling special bulky commodities. The general appliances may be of two kinds—the independent donkey engines,

windlass and hoisting gear or so-called "ship's machinery" on board the vessels, and the land or harbor machinery. Ports differ widely as to the latter type of port appliances. "Much freight is handled over the wharves by means of hand trucks, but there may also be large movable cranes, small movable steam derricks, traveling platform conveyors, automatic lifts, locomotive wharf derricks, wire cables and chutes, and endless chain arrangements." [1] Many European ports are equipped with a larger number of stationary or movable cranes than



Vessels and Lighters in Berth—New York Dock Company

From a photograph by W. D. Hassler.

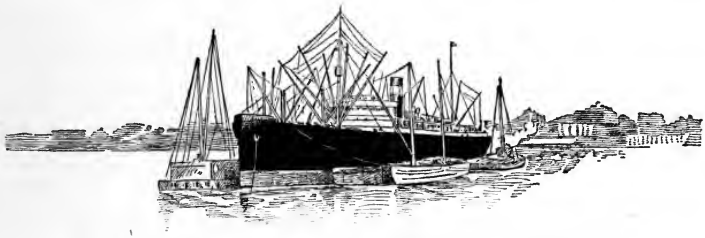
are found at American ocean ports, but the use of hand trucks everywhere is surprisingly large.

The freight-handling machinery provided on the vessels and the wharves is supplemented by large numbers of harbor craft, because much freight is not handled directly between the ocean vessels and the wharves or the railroad cars, and ocean, inland and coastwise vessels with which they interchange cargoes. A vessel may anchor out in the open harbor when loading or discharging, and even when it docks in a slip

[1] Johnson and Huebner, *Export Shipping*, 113.

or alongside a bulkhead much freight may be brought to it or received from it by harbor craft. At New York this so-called "lighterage" work is performed by 10,500 or more harbor craft, including "lighters" of 300 to 800 tons freight capacity, covered barges of 300 to 500 tons capacity, car floats, floating derricks, car ferries, scows, tugs and other small craft. At London it is said that some 11,000 river barges are employed to handle about four-fifths of the goods loaded on or discharged from the ships in dock.[1] At many ocean ports the amount of lighterage work performed is relatively less extensive.

American ports have, on the whole, made more progress in their special freight-handling equipment than in their gen-



Loading a Vessel from Lighters—New York Harbor

From *World's Work*, Feb., 1916.

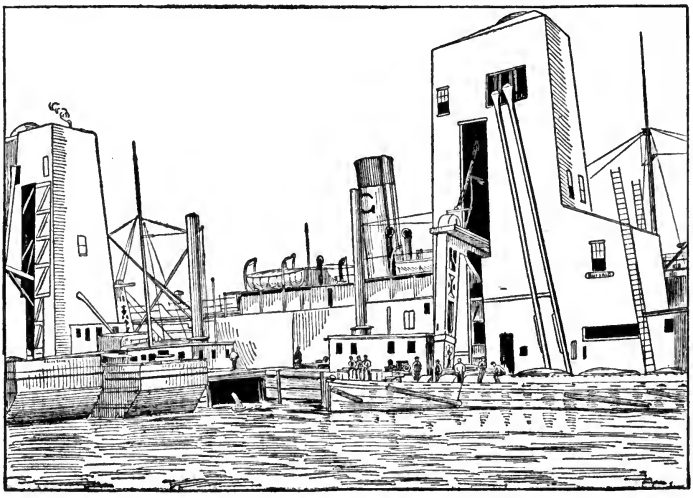
eral cargo facilities. Chutes and pockets, car-dumping machines, movable loading and unloading buckets, electric conveyors, floating tipples, or "fast plants" of various kinds are provided for loading or discharging coal and ore. "Grain is handled in bulk at many points through stationary or floating elevators. Petroleum wharves with special appliances have been erected at various Atlantic, Gulf and Pacific ports; and at some ports special machinery is used for handling fruit, phosphate and fertilizer materials, sand, gravel and other building materials." [2]

It is especially important that the various parts of an ocean terminal be coördinated, as far as possible, with a view to

[1] D. Owen, *Ocean Trade and Shipping*, 24.

[2] Johnson and Huebner, *Export Shipping*, 115.

reducing the need for expensive drayage and lighterage. Belt line railroads are operated along the waterfront at some ports to connect the wharves used by ocean vessels with each other, with those used by coastwise and inland vessels, with the premises of local industrial and mercantile establishments, and with the railroads serving the port. A good example of such a belt line is the one operated by the city of New Orleans. Coördination between the waterfront and the railroads is one of the most serious needs at American ports. As is shown in the diagram on page 137, the railroads usually have tracks connecting with such water terminals as are con-



Floating Grain Elevator, 31st Street Pier, South Brooklyn

trolled or owned by them, and with certain additional wharves, but at many ports large volumes of railroad freight are carted between the railroads and the waterfront or are moved about the port on harbor craft.[1]

[1] For description of port agencies and port services see chapter xi; for description of port charges see chapter xxvii.

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PART TWO

THE OCEAN TRANSPORTATION SERVICE

CHAPTER XI

THE OCEAN FREIGHT SERVICE—ITS ORGANIZATION

Freight, passenger and express services contrasted, 147. Ocean and rail mail services contrasted, 148. Magnitude of ocean trade and tonnage, 148. Kinds of freight transportation services, 149. The tramp or chartered service, 150. Regular line service, 151. Service of privately operated or industrial carriers, 152. Business administration of ocean freight service, 152. The freight forwarder, 153. The ship broker, 153. Maritime exchanges, 154. Port services and agencies, 155. References, 157.

THE business of ocean transportation, like that of rail carriage, comprises the freight, passenger, mail and express services, and each branch of the service merits separate consideration.

Although many vessels carry both freight and passengers, the freight and passenger services on the ocean are mainly performed by different kinds of ships, and the two services are largely distinct. The passenger traffic is now all handled by steamers, and the vessels are operated as "lines" whose ships have definite routes and a fixed schedule of sailings. Freight, however, is handled both by sailing vessels and by steamers, and both classes of ships may be run as lines having fixed sailings or may be dispatched to such places and at such times as the demands of shippers may determine. In this regard there is a general analogy between rail and ocean traffic. Most rail freight is forwarded at the convenience of the shipper, and by trains that have no fixed schedules; but there is also a growing volume of schedule freight—fruit, milk, dressed meat, etc.—handled by trains operated upon a definite schedule.

The differentiation of the freight and express services is not so sharp on the ocean as upon the railway. While express companies do an international business, and ship their parcels

by the passenger-carrying steamers, the steamship company, as will be explained later, does not contract, as the railroad company does, to turn all express business over to some particular company. The ocean carrier operating fast steamers deals with express companies as with individual shippers; and it may not only carry packages for several express companies, but may and does solicit the high-class freight and package traffic from exporters, forwarders and individuals.

The mail service performed by ocean steamers is analogous with that of the railroad company; in each instance the government contracts with the carrier for a definite service of stipulated speed and frequency, but the compensation of the ocean carrier is not always based upon the weight of the mail matter handled or the space occupied by it, as is true in the railway mail service, the pay of the steamship company being sometimes the amount of the ocean postage in whole or in part, and sometimes a definite annual sum of money. In making contracts for carrying the mails, governments often provide for better facilities for freight and passenger traffic, and mail payments often accurately, but sometimes incorrectly, are spoken of as mail "subsidies."

The transportation of the ocean commerce of the United States is a service of great magnitude and of increasing volume. The total value of the foreign trade of the United States (imports and exports of merchandise) for the year ending June 30, 1916, was $6,531,366,000. Some of this, 11.2 per cent, was carried by rail across the northern and southern borders of the United States, and across the Great Lakes lying between the United States and Canada; but nearly nine-tenths of the vast foreign commerce of the United States is maritime traffic. The coastwise traffic of the Atlantic, Gulf and Pacific seaboards, while less in volume and value than the country's foreign trade, constitutes an additional maritime transportation service of large tonnage, the exact amount of which, however, is not recorded. There is, moreover, the trade and traffic between the United States and its non-contiguous territories, which in 1916 amounted to $318,624,000 in value.

To transport the foreign commerce of the United States in 1916, vessels with an aggregate tonnage of 105,973,000 tons net register entered and cleared our ports. Thirty-four per cent of these entrances and clearances were made by American vessels in 1916 as compared with 25.7 per cent in the fiscal year 1914 before the outbreak of the European War. What the entrances and clearances of our coastwise fleet were at the seaports of the United States cannot be stated; but the tonnage of the country's documented maritime coastwise fleet exceeds 3,000,000 tons gross, and the entrance or clearance figures would naturally be many times the enrolled tonnage. The commerce of the United States with its possessions, and the trade of those possessions with the world generally, also call for an increasing shipping service.

The internal development of the United States is being accompanied by a rapid expansion of international trade. This growth of international commerce has been made possible by better transportation, both by rail and by water, whereby both heavy commodities of low value per weight, and also perishable articles, have become transportable. The growth of the world's tonnage during the past 50 years has been due mainly to the steady increase in the transportation of mineral and forest products that must be carried cheaply, if at all, and secondarily to the constantly growing traffic in fruits, meats, manufactures, and other commodities which require a fast freight service, refrigeration and special warehousing facilities.

The business administration of the ocean freight service may be conveniently discussed by considering (1) the various types or kinds of freight transportation services, (2) the business arrangements whereby the movement of freight traffic is facilitated, (3) the port services and agencies, and (4) the ship's papers and the papers employed in making shipments.

Kinds of Ocean Freight Transportation Services

Ocean freight transportation services are of three principal types: (a) the tramp or chartered service, (b) the regular line

service, and (c) the service of privately operated or industrial carriers.

The tramp or chartered service is rendered by vessels, self-propelled or sailing, that may be hired to carry cargo of any kind not requiring vessels of special design, and are operated singly over any ocean route and to any destination not prohibited by physical conditions such as insufficient harbor depths or by legal requirements.[1] Tramp vessels are chartered either for a particular trip, or for a stipulated period. They usually carry full shiploads of bulky commodities such as coal, ore, nitrates, grain, lumber and lumber products, sugar, building materials and chalk; but they frequently carry iron and steel or any other products moving in vessel-load lots; and are occasionally placed "on the berth" by their owners, by ship brokers or ship speculators for smaller shipments of general cargo. They are sometimes chartered by a regular line company to operate in the line service, but at such times they temporarily cease to perform a tramp service.

The capital and operating costs of tramps are less than those of regular line vessels. As was stated in Chapter III, they are of average size, draft and speed, and are built, not for maximum speed and passenger convenience, but for maximum economy and freight capacity without sacrifice of ability to enter harbors and channels of average water depth. Their owners, moreover, do not need to provide themselves with expensive, permanent docks, wharves, warehouses or other port facilities; and need not maintain expensive offices and freight-soliciting agencies or conduct advertising campaigns, for they depend mainly upon ship brokers to provide their vessels with cargoes. On the contrary, however, they are at a disadvantage as compared with regular line vessels in that they are not adapted to transport the very profitable high-class freight that moves in less than shipload lots and requires rapid delivery, and they do not share in the revenues of the passenger, mail and express services. Nor have they the advantage of regular patrons as have many of the regular freight and

[1] Johnson and Huebner, *Export Shipping*, 29.

combination freight and passenger lines. Tramps are also at a disadvantage as compared with the specialized vessels operated by private industrial concerns in that they are not especially constructed and equipped for the carriage and handling of perishable fruit, oil or other special freight.

When the traffic between given termini or over particular routes becomes heavy and regular, line services are established. Some of the regular lines carry freight exclusively, others carry a varying proportion of freight and passengers, and there are some strictly passenger lines. Lines operate between fixed points, over definite routes and on announced schedules. They carry most of the world's overseas general freight cargo, passenger, mail and express traffic. In addition, they compete with the tramps for bulky commodities or heavy traffic of regular volume. They sometimes supplement their regular cargoes by placing a vessel "on the berth" for part cargoes of commodities such as grain or case oil, which they may be willing to carry at low rates so as to avoid the necessity of carrying profitless weights of ballast.

The vessels used in the line service range everywhere from ordinary freighters, which do not differ from the better types of tramps, to large cargo vessels especially built for the freight line service, and to the great passenger-carrying vessels that frequent the North Atlantic route.[1] They differ from the tramps in that they usually are larger, faster and more elegantly equipped. While the tramp service is rendered both by sailing vessels and steamers, practically all the line vessels on the high seas are at present equipped with engines. The sailing vessels which originally began the line service in 1816 were later relegated to the tramp and private freight services.

The number of vessels in a line and the frequency of sailings are determined by the volume of business. Whether the company shall have the same number of ships in commission at all times will depend upon the seasonal or periodical fluctuations in traffic. The company operating a freight line frequently owns vessels enough to handle only the business of the periods

[1] *See* chapters ii and iii.

of lighter traffic, and charters such additional ships as may be needed from time to time.

Privately operated or industrial carriers differ from tramp and line carriers in that they are primarily engaged in the carriage of freight for the industrial or mercantile concerns which operate them. The difference between them and tramps or liners cannot in some cases be easily distinguished, because they frequently transport cargoes for others as well as for the companies which operate them. Even such vessels, however, are primarily engaged in a private service, and act as common carriers only to fill surplus space or to obtain return cargoes. Many vessels engaged in this service are special types of ships constructed to transport some particular commodity, such as coal, ore, lumber, fruit, asphalt or petroleum. The advantages accruing to the private concerns operating these vessels are (a) the use of specialized equipment, (b) the exact degree of regularity and frequency of service desired, (c) a reduction in some instances of the firm's transportation bill, and (d) more complete control over a particular industry or trade in so far as its control may depend upon ocean transportation facilities

Business Arrangements for Ocean Freight Movements

To secure passenger and freight traffic for line vessels, to obtain cargoes for vessels seeking charter traffic, and to provide shippers desiring to charter a vessel with the ship they need, and at the time and place the ship is wanted, there are passenger agencies, freight forwarders and ship brokers; to facilitate the purchase and sale of the commodities exchanged in commerce, there are banking houses that buy and sell bills of exchange, and buying and selling agencies of many kinds; and, to minimize the financial risks of ocean transportation, there are companies to insure both cargoes and ships. Each of these agencies has its activities carefully organized; and the organization of international trade is so detailed and complex, that it can be only briefly referred to in this volume. The methods of purchasing and selling imported and exported

wares and of financing foreign transactions cannot be fully discussed in a volume on transportation.[1]

The large passenger steamship companies have offices or agents in all large cities, and their advertisements in the newspapers and magazines keep the traveling public fully informed regarding the transportation facilities afforded. The companies operating freight lines do not advertise so generally, but they all have announcements in the technical shipping journals, and they have offices and solicitors where the traffic to be secured warrants the solicitation of business. They sometimes turn the work of developing traffic or even the management of an entire line over to large steamship agencies. Moreover, there are firms of freight forwarders through whom commodities may be shipped to all sections of the world, and through whom commodities from all foreign countries may be imported.

The freight forwarder takes all kinds of freight, not only from the seaport of ocean shipment, but also from any interior point, and delivers the goods to the foreign seaboard or inland city of destination. As an importer, also, his services cover the entire transportation. The arrangements between shippers and forwarders are various; the most frequent contract made covers a single shipment, but oftentimes manufacturers, and others that are exporting regularly, make contracts running a year or more with forwarders to handle a stipulated amount of cargo weekly or monthly at agreed rates. Some, but not all, forwarding firms operate vessels of their own over certain routes.

Frequently the freight forwarder is also a ship broker, and as such is an essential part of the traffic and operating organization of the tramp service. The ship broker performs a service of great importance. As Professor J. Russell Smith says:[2]

[1] *See* B. O. Hough, *Practical Exporting;* Pratt, Kennedy and Porter, *Export Policies;* Fowler, Richards and Talbot, *Export Houses;* W. F. Wyman, *Direct Exporting;* P. R. Mahony, *The Export Salesman;* and C. W. Stern, *Importing.*

[2] *Organization of Ocean Commerce,* 11.

Several thousands of ships are scattered over the oceans of the commercial world, engaged in a traffic that is supplied by hundreds of ports in all climes and all continents, from Greenland to New Zealand. Every day scores, or even hundreds, of these independent vessels are seeking freight to carry. It is a complicated world puzzle to bring together the ships and the freight so that the one may be most profitably employed and the other most economically carried. The work is done by the ship brokers and steamship agents, who receive their pay in the form of a commission or brokerage, a percentage on the transaction. In all shipowning countries these firms have their headquarters, and each one has agents and "correspondents" in many other countries, so that among them all they make a complicated web that reaches to all cities of commercial importance. The whole is so bound together by telegraph and cable that, like a spider's web, if touched by anything of importance at any point the whole structure vibrates with the news. The departure of a steamer loaded with sugar from a small port in Java, or ore from Chile, is reported by telegraph in Europe and America. There is practically a complete record of all vessel movements published daily by Lloyds, the Great British firm of underwriters. The men engaged in world commerce have, through their world telegraph, a world community of information.

The ship broker provides ships with cargoes and secures cargoes for ships. He also attends to executing the charter parties or contracts upon which the tramp service is based. At times he makes temporary advances of funds to the masters of tramp vessels to enable them to pay current expenses until their next freight bill is paid. Occasionally a ship broker may act in the capacity of a permanent steamship agent or a managing owner.

Maritime exchanges or similar organizations have been organized at some American ports by men interested in ocean shipping to promote generally the commerce of the port and to perform specific functions, such as the collection of shipping statistics, keeping records showing the movements of vessels, establishing reporting stations with agents and a launch or wireless service, collecting current shipping news, keeping

a record of charter parties or charter books, standardizing charter parties, arbitrating shipping disputes, and establishing local rules governing vessel demurrage, loading and discharging, and the receipt and delivery of special kinds of freight. At some ports the regular commercial exchanges, boards of trade, or chambers of commerce undertake work of this kind. Some of the grain or produce exchanges are also of importance in the shipping of grain cargoes, for their membership includes ship brokers, freight forwarders, steamship agents and insurance brokers. Grain charter rates are quoted, and vessels may be chartered, vessel space engaged, and marine insurance obtained on the floors of these exchanges.

Port Services and Agencies

The various local or strictly port services performed at the ocean terminals are essential parts of the ocean freight service. Freight needs to be transferred between the waterfront and the railroads or local industries; between wharves; between wharves and vessels; and from one vessel to another. As was stated in the preceding chapter, general and special freight-handling facilities, trucks, lighters and other harbor craft, belt-line railways or railroad sidings, wharf sheds, and warehouses and other facilities are provided to accomplish this transfer of freight. They are variously owned by railroad and steamship companies, terminal and dock companies, industrial and commercial concerns, public trusts, municipalities or the States, lighterage and towing companies, and cartage or trucking concerns. Large numbers of stevedores or longshoremen are also found at the ports to load and discharge cargoes. It is, moreover, necessary to comply with the shipping formalities of the ports and to issue the various shipping papers described in the following chapter.

These port services are in many instances of direct importance to the shipper. Shippers who are located at or near the port city may give them their personal attention, or deal directly with the various concerns who stand ready to perform

them for a consideration. Those who are in the interior may, if they desire, ship their freight on through bills of lading, which relieves them of the responsibility of attending to the services themselves at ports. The carriers will, in this case, see that the freight is forwarded through the ports to destination.

Many shippers, especially the large shipping and importing concerns, do not ship on through bills of lading, because they prefer to pay special attention to competing rates and services and in that way reduce their freight bills. Interior shippers not shipping on through bills of lading may maintain private agents of their own at the principal ports through which they ship or receive ocean cargoes. They may also at times engage the ocean carriers to attend to the port work for them. Many shippers engage the freight forwarders, mentioned above, to forward their goods through the port. Others may at times arrange to have the work at the ports attended to by commercial agencies, such as export commission houses, manufacturers' agents or other concerns, whose principal work is to sell or purchase exports and imports. Numerous custom-house brokers make a specialty of clearing imported wares through the customs house.

Vessels must also be supplied with fuel at the ports or at coaling stations, a service that is performed either by the regular coal and oil companies of the ports or by special bunker coal and oil concerns. The fuel is sold either at current, fluctuating prices, or according to the terms of annual contracts. They also need to purchase ships' supplies, such as food, lumber and boatswain's stores from supply dealers. It may be necessary to overhaul and repair a vessel in the dry docks of a shipbuilding and repairing concern. Finally, the vessel may require the services of one or more tugs to tow it into and out of the harbor and to assist it in docking. Most of the tugs at American ports are operated by special towing companies.

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CHAPTER XII

THE OCEAN FREIGHT SERVICE (*Concluded*)—PAPERS EMPLOYED

Shipper's or shipping papers, 158. Shipping permit, 158. Dock receipt, 159. Shipper's manifest, 159. Consular invoice, 159. Certificate of origin, 161. Non-dumping certificate, 162. Exporter's invoice, 164. Statement of charges, 164. Memorandum note, 164. Ocean bill of lading, 166. Through or export bill of lading, 169. Charter party, 170. Import documents, 175. Ship's papers, 176. Ship's manifest, 176. Bill of health, 176. Shipping articles, 178. Crew list, 178. Ship's register or measurement certificate, 178. List of stores, 178. Inspection certificate, 178. Special documents, 183. Clearance of vessel, 183. References, 183.

In handling and accounting for ocean traffic, and in meeting the requirements of the shipping and revenue laws, several business papers are regularly made out by the shipper and the carrier. The papers which are employed by the carrier and shipper in their dealings with each other, and the papers which the shipper requires in his relations with government authorities, insurance concerns and consignees, may be appropriately designated as *shipper's or shipping papers;* while those papers issued by the carrier in his dealings with government authorities and in the operation of its vessels are generally referred to as *ship's papers.*

Shipper's or Shipping Papers

The usual procedure in the shipping of overseas cargoes, after a satisfactory freight rate has been obtained, begins with the application of the shipper or his agent to the ocean carrier for a *shipping permit.* As is shown in Form 2, this paper grants permission to deliver the goods at a specified wharf on particular days. The freight may then be delivered at the waterfront, and the receiving clerk at the wharf will issue a

Cargo at shipper's risk from fire or flood while on pier.

To the Receiving Clerk,

The Royal Mail Steam Packet Co.
South Side Pier 42, North River, New York
(foot Morton Street)

*S.S.*_____

Receive *from*_____

_____

_____

*To be delivered*_____

New York,

SANDERSON & SON, Agents.
22 STATE STREET

All packages must be distinctly marked with the Port of destination.

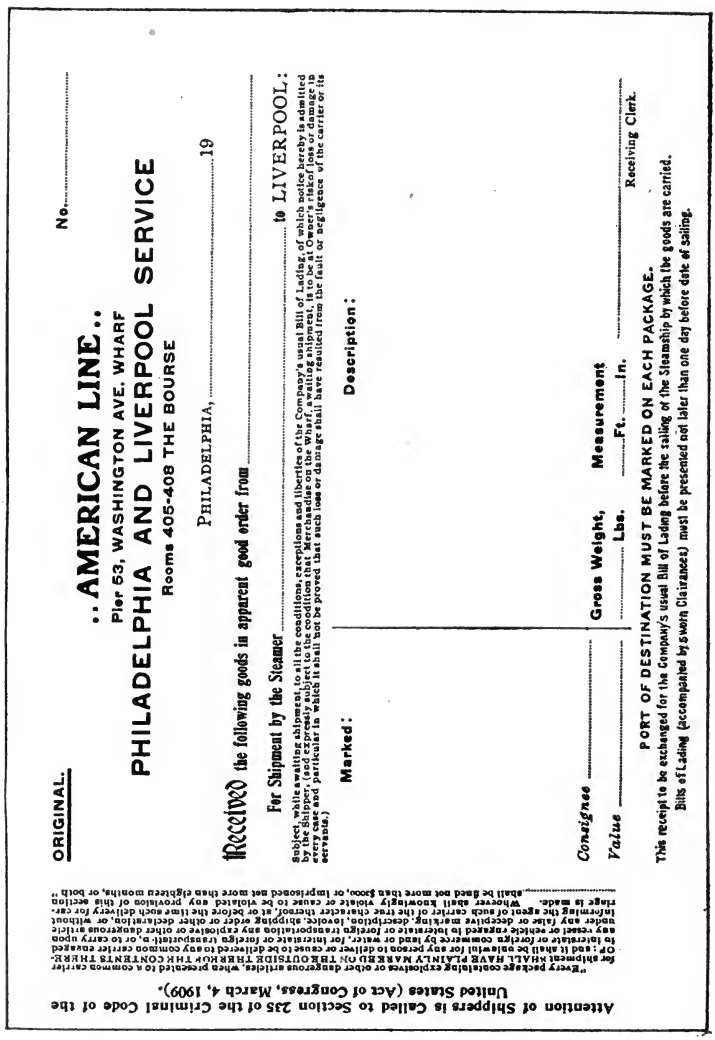
Form 2.—Shipping Permit

dock receipt, such as is reproduced in Form 3. It contains the name of the vessel on which the goods will be shipped, their destination, marks, numbers, weights and measurements, and specifies that they are accepted for transportation, on the usual terms of the carrier's bill of lading.

Meanwhile the shipper or his agent proceeds to clear his goods at the custom house. He is required by the United States Government to fill out and file an official *shipper's manifest,* which, as is shown in Form 4, details the goods being exported. Affidavit to this manifest is required, for it is one of the bases of the government's foreign trade statistics.

A document known as a *consular invoice* must also be made out when exports are destined to the Latin-American countries, to Portugal, and to certain other destinations. It is made out on forms prescribed by the government of these countries and sworn to at their consulates. The number of copies required in the different countries varies, and fees are charged by the foreign consuls for certifying them. Their form also varies; the Brazilian consular invoice, shown in Form 5, is representative. American exporters sometimes complain of the consular invoice requirement, forgetting that the United States Government requires foreign exporters to make out such an invoice when shipping to the United States. The announced purpose of consular invoices is to make difficult the

understatement of values with a view to avoiding the payment of import duties. Most countries, however, do not require such invoices, because the certification of the consuls is in many instances merely perfunctory.



ORIGINAL. No.....

..AMERICAN LINE..

Pier 53, WASHINGTON AVE. WHARF

PHILADELPHIA AND LIVERPOOL SERVICE

Rooms 405-408 THE BOURSE

PHILADELPHIA, ...19

Received the following goods in apparent good order from .....

For Shipment by the Steamer ..... to LIVERPOOL:

Subject, while awaiting shipment, to all the conditions, exceptions and liberties of the Company's usual Bill of Lading, of which notice hereby is admitted by the Shipper, (and expressly subject to the condition that Merchandise on the Wharf, awaiting shipment, is to be at Owner's risk of loss or damage in every case and particular in which it shall not be proved that such loss or damage shall have resulted from the fault or negligence of the carrier or its servants.)

Marked: | Description:

Consignee ..... | Gross Weight, ... Lbs. | Measurement ..... Ft. ..... In. .....

Value .....

PORT OF DESTINATION MUST BE MARKED ON EACH PACKAGE.

This receipt to be exchanged for the Company's usual Bill of Lading before the sailing of the Steamship by which the goods are carried.

Bills of Lading (accompanied by sworn Clairances) must be presented not later than one day before date of sailing.

Receiving Clerk.

Attention of Shippers is Called to Section 235 of the Criminal Code of the United States (Act of Congress, March 4, 1909).

"Every package containing explosives or other dangerous articles, when presented to a common carrier for shipment SHALL HAVE PLAINLY MARKED ON THE OUTSIDE THEREOF THE CONTENTS THEREOF: and it shall be unlawful for any person to deliver or cause to be delivered to any common carrier engaged in interstate or foreign commerce by land or water, for interstate or foreign transportation, or to carry upon any vessel or vehicle engaged in interstate or foreign transportation any explosive or other dangerous article under any false or deceptive marking, description, invoice, shipping order or other declaration, or without informing the agent of such carrier of the true character thereof, at or before the time such delivery for carriage is made. Whoever shall knowingly violate or cause to be violated any provision of this section shall be fined not more than $2000, or imprisoned not more than eighteen months, or both."

Form 3.—Dock Receipt

In exporting to some foreign countries it is further necessary to make out before a notary public a *certificate of origin*, to the effect that the goods shipped are the product or manufacture of the United States. Many countries have two tariff schedules, and this certificate is required in order to obtain the minimum or most favored nation duties. Countries requiring consular invoices usually do not call for a separate certificate

ORIGINAL—(For United States Customs Use Only). (388, Feb., 1916.)

Treasury Department Customs Catalogue No. 7528.

SHIPPERS EXPORT DECLARATION

OF MERCHANDISE SHIPPED TO FOREIGN COUNTRIES OR NONCONTIGUOUS TERRITORIES OF THE U. S.

☞ Clearance will not be granted until shipper's declaration has been filed with the Collector of Customs. U. S. Government export statistics are compiled from this declaration and it must be correct.

Merchandise shipped by _____ (Original Shipper)

Address: No. _____ Street _____ City _____ State _____

From _____ (Place of original shipment) Via _____ (Carrier from interior point, if any)

For shipment on the _____ (Name of carrier. If vessel, give name, motive power and flag if known)

From _____ (U. S. Customs port of Exportation) To port of _____ (Foreign port) Country of _____ (Ultimate destination of goods)

MARKS AND NUMBERS	Number and kind of packages	ARTICLES Describe the articles fully as canned pork, printed cotton cloth, printing presses, apples, etc. General terms such as meats, dry goods, machinery, fruits, etc., will not be accepted.	QUANTITY State number of pounds, tons, gallons, yards, etc.	VALUE At time and place of shipment	
				U. S. PRODUCTS Including foreign goods altered or remanufactured in the U. S.	FOREIGN products in same condition as imported

This form may be delivered to carrier in sealed envelope. Way-bill or Manifest No. _____ Date _____ Declaration C. H. No. _____ (To be filled in by carrier if desired)

I, the undersigned, solemnly and truly declare that the above statement is a complete, just and true account of all merchandise shipped by the party named; on board the vessel, car, or vehicle; and to the place or country named above, and that the description and quantity of each article is truly stated, and that the values thereof are the actual costs or values at the time and place of shipment for exportation.

Sworn and subscribed to before me

at _____

on: _____ 191

Signature,

☞ _____ (Actual shipper, owner or consignor)

This oath to be taken before notary, collector of customs, or officer authorized to administer oaths. This declaration must be signed but oath need not be taken on exportations to Canada or Mexico by car, vehicle or ferry; or on shipments by vessel to any country if total value of items does not exceed $100.00.

Form 4.—Shipper's Manifest

of origin, because the former contain all the information needed.

In the case of shipments to certain British colonies—Australia, New Zealand, South Africa and Canada—a *non-dumping certificate* is required. It contains the shipper's domestic

Via FACTURA CONSULAR BRAZILEIRA (BRAZILIAN CONSULAR INVOICE)

Nº_____

Consulado Geral em Nova York

DECLARAÇÃO (DECLARATION)

Declaramos solemnemente que somos exportadores ou carregadores
We solemnly declare that we are the exporters or shippers

das mercadorias mencionadas nesta factura contidas nos _____ *volumes*
of the merchandise specified in this invoice, contained in the packages

indicados, a qual é exacta e verdadeira a todos os effeitos,
indicated, which is in all respects true and exact,

sendo essas mercadorias destinadas ao porto de _____
this merchandise being destined to the port of

do Brazil e consignadas aos Snrs. _____
Brazil and consigned to Messrs

de _____
of

Nova York ____ *de* _____ *de 19*

_____

_____ *Agente do Exportador*
Agent of Exporter

Nome e nacionalidade do navio á vela _____
Name and nationality of sailing vessel

Nome e nacionalidade do navio a vapor _____
Name and nationality of steamer

Porto do embarque da mercadoria _____
Port of shipment of the merchandise

Porto do destino da mercadoria _____
Port of destination of the merchandise

Porto do destino da mercadoria _____ *com opção para* _____
Port of destination of the merchandise *with option for*

Porto do destino da mercadoria _____ *em transito para* _____
Port of destination of the merchandise *in transit for*

Valor total da factura inclusive frete e despezas approximadas $ _____
Total value of the invoice inclusive of approximate freight and charges

Frete e despezas approximadas $ _____
Approximate freight and shipping charges

Agio da moeda do paiz de procedencia _____
Exchange of the country whence exported

OBSERVAÇÕES DO CONSUL

_____

_____

_____

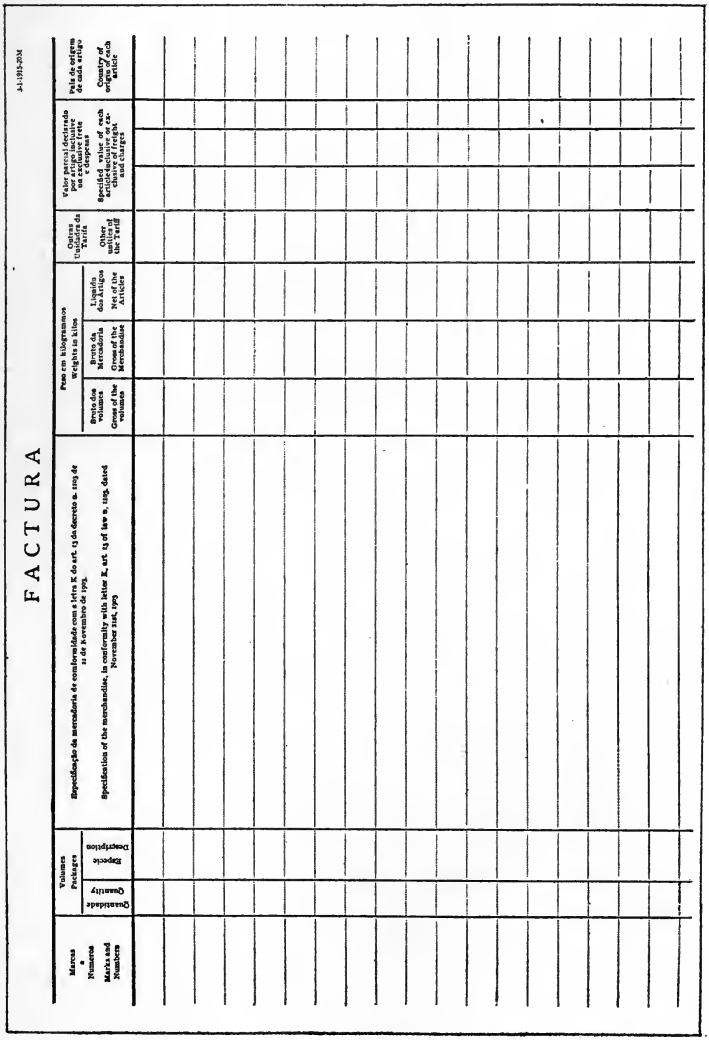
VISTO. Consulado Geral dos E. U. do Brasil.

Nova York ____ *de* _____ *de 19*____

Pagou $1.65

Form 5.—Consular Invoice (Brazil)

as well as his export prices and discounts, or a statement to the effect that his export prices and discounts are the same as those granted in the domestic markets of the United States.


FACTURA
24-1915-2034
Marcas e Números
Marks and Numbers
Volumes
Packages
Quantidade
Quantity
Espécie
Description
Especificação da mercadoria de conformidade com a letra K do art. 13 do decreto n. 1019 de 31 de Dezembro de 1913.
Specification of the merchandise, in conformity with letter K, art. 13 of law n. 1019, dated November 31st, 1913
Peso em kilogrammas
Weights in kilos
Bruto dos volumes
Gross of the packages
Bruto da Mercadoria
Gross of the merchandise
Liquido dos Artigos
Net of the articles
Outras Unidades da Tarifa
Other units of the Tariff
Valor parcial declarado por artigo inclusive sacaria, caixas e despesas
Specified value of each article, including all charges of freight, box and cases
Paiz de origem ou producção
Country of origin or production of the article

Back of Form 5

The purpose of these British colonies is to guard against the dumping of imported wares into their markets at "exceptionally low prices, or at rates less than cost of production." [1]

The consular invoices and other government-required documents just mentioned are not to be confused with the regular *exporter's invoice,* which is made out by the shipper when the goods are packed for shipment. This is a private invoice, which accurately lists all the packages being shipped, their numbers, weight, measurements, code words, description, and, above all, their price. As is shown in the typical invoice, Form 6, it also contains the name of the vessel on which the goods are being shipped, their destination, marks of the consignee and the signature of the responsible official of the shipping concern. Additional items must be inserted when the goods are shipped to certain countries. Three or more copies need to be issued, because the exporter's invoice is used for various purposes. If the shipper wishes to negotiate a documentary draft or bill of exchange, two copies will be required by the bank to be attached to the bill of lading. A copy should also be sent to the foreign consignee for his information, and ultimately to clear the goods through the foreign custom house; the shipper may also desire a copy for his files, and in case he is located in the interior perhaps another to send to his port representative.

Exporter's invoices are at times supplemented by a separate *statement of charges,* i. e., the charges for ocean and rail freight, cooperage, port services, insurance, etc., may be listed separately instead of in the regular invoice. A separate packing list or *memorandum note* may also be sent to the consignee. It is not an essential shipping paper, but it is a convenience to the consignee. It differs from the exporter's invoice in that it reverses the method of listing. It shows what is contained in each shipping case, while the invoice usually shows in which case each article is packed.

In order to protect his goods against loss or damage while en route at sea or in port, the shipper insures them with a ma-

[1] B. O. Hough, *Practical Exporting,* 505.

NVOICE OF 16,000 Bus. 2 Red W. Wheat

SHIPPED BY GRAFTON & CO., PHILADELPHIA, U. S. A.

GRAIN

Receivers, Shippers and Exporters

The Bourse

Shipped per S/S Laurentian *for* Glasgow

For Account and risk of New York

Freight 2½d. per 60 lbs. & 5% *Insured* Ins. Co. of North America

Sale October 9th, 1905 *Contract No.*

16,000 Bus. @ 90c.				$14,400	00
Freight £166.13.4					
5% 8. 6.8					
£175. 0.0 @ 4.83				845	25
				$13,554	75

Documents with Drafts:
- Bills Lading 2 Setts 8,000 Bus. dated 10/25
- Insurance 2 " $69.80 Ctfs. Nos. 136630-31
- Ctfs. Weights & Inspection 2 "

E. & O. E.

Philadelphia, October 25th, 1905

Form 6.—Invoice of an Ocean Shipment

rine insurance company or group of underwriters. The insurance policies or certificates which he may obtain are fully discussed in Chapter XVI.

The principal shipping paper, however, that the shipper obtains, is the *ocean bill of lading.* It is a fundamental document, because it represents the goods being shipped. It is the final receipt from the carrier, a shipping contract between the carrier and shipper, and when drawn to the shipper's order is a negotiable document, which the shipper may use as the basis for a draft. Indeed, the most widely used method of financial settlement in the foreign trade is by documentary drafts or so-called international bills of exchange, to which a negotiable ocean bill of lading, a marine insurance certificate or policy and the shipper's invoice are attached. When drawn to the shipper's *order,* the ocean bill of lading needs to be endorsed by the shipper either in blank or to the particular foreign consignee, and the latter cannot obtain the goods from the ocean carrier without presenting the endorsed bill of lading. Ocean bills of lading are rarely drawn directly in the name of the consignee unless he has paid for the goods or has provided security for payment before shipment, or unless he has an open account arrangement with the shipper.

Form 7 contains a typical bill of lading such as is issued by ocean carriers in the export trade of the United States. Yet the form of bills of lading and the contract contained therein are not uniform. The liability clauses of the contract differ greatly from those contained in railroad bills of lading because, as is stated in Chapter XVI, the legal liability of ocean carriers is covered by separate statutes and is much more limited than that of land carriers. The ocean bill of lading also contains the names of the shipper and vessel, the shipping port and destination, the name or mark of the consignee, the tonnage and description of the goods and the rate of freight.

Ocean bills of lading are usually prepared by the shipper on forms provided by the ocean carrier, and are signed by the latter upon presentation of the dock receipt and the shipper's manifest. The number of copies issued varies from three to

eight, and depends upon how many are desired by the shipper, the carrier, and the consuls of foreign countries. If the shipper wishes payment by draft, the banks will desire at least two negotiable copies, and will demand that a "full set" of the negotiable copies be delivered to them. The remaining or non-negotiable copies are required by the shipper for his files and

EXPORT BILL OF LADING.

Export Bill of Lading No..... Lot No..... Contract No.....

THE (ISSUING) **COMPANY,**

IN CONNECTION WITH OTHER CARRIERS ON THE ROUTE.

Received at.....from.....the following property, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, numbered, consigned and destined as indicated below:

CONSIGNEE AND DESTINATION.	MARKS AND NUMBERS.	ARTICLES.
PARTY TO BE NOTIFIED.		
		*.....Weight.....(subject to correction)..... (U. S. Law requires Agent issuing Bill of Lading to write either "shipper's" or "carrier's" before "weight".)

To be carried to the Port (A) of.....and thence by.....to the Port (B).....(or so near thereto as steamer may safely get, with liberty to call at any port or ports in or out of the customary route), and to be there delivered in like good order and condition as above consigned, or to consignee's assigns, or to another carrier on the route to destination if consigned beyond said port (B), upon payment immediately on discharge of the property, of the freight thereon, at the rate from.....to.....of..... cents, United States gold currency, per one hundred pounds GROSS WEIGHT, and advanced charges..... ($.....), with all other charges and average, without any allowance of credit or discount; settlement to be made on the basis of 4 shillings 2 pence, 4.25 marks, 5.25 francs, 2.50 Dutch guilders, 3.80 kroner to the dollar, United States gold currency; if in other currency than herein provided for, settlement to be made at the rate of $4.80 to the pound sterling, at the current rate of exchange officially quoted on the day the ocean steamer enters the Custom House at its port of discharge, for which bankers' shortsight bills on London can be bought; when ocean freight is prepaid, $4.86 United States gold is equivalent to one pound sterling.

In consideration of the rate of freight herein named, it is hereby stipulated that the service to be performed hereunder shall be subject to the conditions, whether printed or written, herein contained, and said conditions are hereby agreed to by the shipper and by him accepted for himself and his assigns as just and reasonable.

CONDITIONS.

Any alteration, addition, or erasure in this bill of lading which shall be made without the special notation hereon of the agent of the carrier issuing this bill of lading shall be void.

ATTENTION OF SHIPPERS IS CALLED TO THE ACT OF CONGRESS OF 1851, AS AMENDED BY THE ACT OF 1893, RELATING TO BILLS OF LADING: Any Railroad Company, Transportation Company, Master of Vessel, Owner of Vessel, or Agent thereof, receiving property for transportation from a point in any State to a point in any other State, or to a point in the District of Columbia, or from a point in the District of Columbia to a point in any State, or from a point in any State or in the District of Columbia to a point in any foreign country, who shall issue any bill of lading or other receipt for any such property, and fail to have the same signed by the agent of the carrier issuing such bill of lading or receipt, or by the master of the vessel on which such property is carried, before the same is delivered to the consignee or to the connecting carrier, shall be liable to the lawful holder of such bill of lading or receipt for any loss, damage or injury to such property caused by the failure of any such carrier or vessel to which such property may be delivered, to issue a bill of lading or receipt for the same.

I.—With respect to the service until delivery at the port (A) first above mentioned it is agreed that:—

1. No carrier or party in possession of all or any of the property herein described, shall be liable for any loss thereof or damage thereto, by causes beyond its control; or by floods or by fire; or by quarantine; or by riots, strikes or stoppage of labor; or by leakage, breakage, chafing, loss in weight, changes in weather, heat, frost, wet or decay; or from any cause if it be necessary or is usual to carry such property upon open cars.

2. No carrier is bound to carry said property by any particular train or vessel, or in time for any particular market, or otherwise than with as reasonable despatch as its general business will permit. Every carrier shall have the right, in case of necessity, to forward said property by any railroad or route between the point of shipment and the point to which the rate is given.

3. No carrier shall be liable for loss or damage not occurring on its own road or its portion of the through route, nor after said property is ready for delivery to the next carrier or to consignee. The amount of any loss or damage for which any carrier becomes liable shall be computed at the value of the property at the place and time of shipment under this bill of lading, unless a lower value has been agreed upon or is determined by the classification upon which the rate is based, in either of which events such lower value shall be the maximum price to govern such computation. Claims for loss, damage, or delay must be made in writing to the carrier at the port of export or to the carrier issuing this bill of lading within nine months after delivery of the property at said port (A), or, in case of failure to make such delivery, then within nine months after a reasonable time for such delivery has elapsed; and claims so made against said delivering or issuing carrier shall be deemed to have been made against any carrier which may be liable hereunder. Unless claims are so made the carrier shall not be liable.

4. All property shall be subject to necessary cooperage and baling at owner's cost. Each carrier over whose route Cotton is to be carried hereunder, shall have the privilege, at its own cost, of compressing the same for greater convenience in handling and forwarding, and shall not be held responsible for deviation or unavoidable delays in procuring such compression. No carrier shall be liable for differences in weights or for shrinkage of any grain or seed carried in bulk.

5. Property not removed by the person or party entitled to receive it within twenty-four hours after its arrival at destination "(Port A)," may be kept in the car, depot or place of delivery of the carrier, at the sole risk of the owner of said property, and there held subject to lien for all freight and other charges. Property taken from a station at which there is no regularly appointed agent shall be entirely at risk of owner until loaded into cars; and when received from private or other sidings, shall be at owner's risk until the cars are attached to trains.

6. No carrier hereunder will carry, or be liable in any way for, any documents, specie, or for any article of extraordinary value not specifically rated in the published classifications, unless a special agreement to do so, and a stipulated value of the articles are endorsed hereon.

7. Every party, whether principal or agent, shipping inflammable, explosive, or dangerous goods, without previous full written disclosure to the carrier of their nature, shall be liable for all loss or damage caused thereby, and such goods may be

Form 8.—Export Bill of Lading

to forward to the consignee, by the carrier for its files or to forward to his agent at destination, and by foreign consuls to fulfill their legal requirements. During a war, a so-called "captain's copy" of the ocean bill of lading as well as a copy of the shipper's invoice may also be carried on board the vessel.

At times the interior exporter, instead of billing his freight

warehoused at owner's risk and expense or destroyed without compensation

8. If upon inspection it is ascertained that the articles shipped are not those described in this bill of lading, the freight charges must be paid upon the articles actually shipped, and at the rates and under the rules provided for by published classifications

9. If all or any part of said property is carried by water over any part of said route, such water carriage shall be performed subject to the further conditions, that no carrier or party shall be liable for any loss or damage resulting from the perils of the lakes, sea or other waters; or from explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery or appurtenances; or from collision, stranding, or other accidents of navigation, or from the prolongation of the voyage And any vessel carrying any or all of the property herein described shall have liberty to call at intermediate ports; to tow and be towed, and to assist vessels in distress, and to deviate for the purpose of saving life or property

10. No carrier shall be liable for delay, nor in any other respect than as warehousemen, while the said property awaits further conveyance, and in case the whole or any part of the property specified herein be prevented by any cause from going from said port in the first steamer, of the ocean line above stated, leaving after the arrival of such property at said port, the carrier hereunder then in possession is at liberty to forward said property by succeeding steamer of said line, or, if deemed necessary, by any other steamer

11 This contract is executed and accomplished, and all liability hereunder terminates, on the delivery of the said property to the steamer, her master, agent or servants, or to the steamship company, or on the steamer pier at the said port, and the inland freight charges shall be a first lien, due and payable by the steamship company

II.—With respect to the service after delivery at the port (A) first above mentioned, and until delivery at the port (B) second above mentioned it is agreed that:—

1. The steamer shall have liberty to sail with or without pilots; that the carrier shall have liberty to convey goods in craft and/or lighters to and from the steamers at the risk of the owners of the goods; and, in case the steamer shall put into a port of refuge, or be prevented from any cause from proceeding in the ordinary course of her voyage, to tranship the goods to their destination by any other steamer; that the carrier shall not be liable for loss or damage occasioned by the act, cause or wheresoever occurring; by barratry of the master or crew; by enemies, pirates or robbers; by arrest or restraint of princes, rulers or people, riots, strikes, or stoppage of labor; by explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery or appurtenances, or unseaworthiness of the steamer, whether existing at time of shipment, or at the beginning of the voyage, provided the owners have exercised due diligence to make the steamer seaworthy; by heating, frost, decay, putrefaction, rust, sweat, change of character, drainage, leakage, breakage, vermin, or by explosion of any of the goods whether shipped with or without disclosure of their nature, or any loss or damage arising from the nature of the goods or the insufficiency of packages; nor for inland damage; nor for the obliteration, errors, insufficiency or absence of marks, numbers, address or description; nor for risk of craft, hulk, or transhipment; nor for any loss or damage caused by the prolongation of the voyage, and that the carrier shall not be concluded as to correctness of statements herein of quality, quantity, gauge, contents, weight and value.

General Average payable according to York-Antwerp Rules. If the owner of the steamer shall have exercised due diligence to make said steamer in all respects seaworthy and properly manned, equipped and supplied, it is hereby agreed that in case of danger, damage or disaster resulting from fault or negligence of the pilot, master or crew in the navigation or management of the steamer, or from latent or other defects, or unseaworthiness of the steamer, whether existing at time of shipment, or at the beginning of the voyage, but not discoverable by due diligence, the consignees or owners of the cargo shall not be exempted from liability for contribution in General Average, or for any special charges incurred, but, with the shipowner, shall contribute in General Average, and shall pay such special charges, as if such danger, damage or disaster had not resulted from such fault, negligence, latent or other defects or unseaworthiness

2. That this shipment until delivery at the port (B) second above mentioned is subject to all the terms and provisions of, and all the exemptions from liability contained in, the Act of Congress of the United States, approved on the 13th day of February, 1893, and entitled "An Act relating to the navigation of vessels, etc"

3 That the value of each package receipted for as above does not exceed the sum of one hundred dollars unless otherwise stated herein, on which basis the rate of freight is adjusted

4. That the carrier shall not be liable for articles specified in Section 4281 of the Revised Statutes of the United States, unless written notice of the true character and value thereof is given at the time of lading and entered in the bill of lading

5. That shippers shall be liable for any loss or damage to steamer or cargo, caused by inflammable, explosive or dangerous goods, shipped without full disclosure of their nature, whether such shipper be principal or agent; and such goods may be thrown overboard or destroyed at any time without compensation.

6. That the carrier shall have a lien on the goods for all freights, primages and charges, and also for all fines or damages which the steamer or cargo may incur or suffer by reason of the illegal, incorrect or insufficient marking, numbering or addressing of packages or description of their contents.

7 That in case the steamer shall be prevented from reaching her destination by Quarantine, the carrier may discharge the goods into any depot or lazaretto, and such discharge shall be deemed a final delivery under this contract, and all the expenses thereby incurred on the goods shall be a lien thereon

8. That the steamer may commence discharging immediately on arrival and discharge continuously, any custom of the port to the contrary notwithstanding, the Collector of the port being hereby authorized to grant a general order for discharge immediately on arrival, and if the goods be not taken from the steamer by the consignee directly they come to hand in discharging the steamer, the master or steamer's agent to be at liberty to enter and land the goods, or put them into craft or store at the owner's risk and expense, and when the goods shall be deemed delivered and steamer's responsibility ended, but the steamer and carrier to have a lien on such goods until the payment of all costs and charges so incurred.

9 That if on a sale of the goods at destination for freight and charges, the proceeds fail to cover said freight and charges, the carrier shall be entitled to recover the difference from the shipper.

10. That full freight is payable on damaged or unsound goods; but no freight is due on any increase in bulk or weight caused by the absorption of water during the voyage.

11. That in the event of claims for short delivery when the steamer reaches her destination, the price shall be the market price at the port of destination on the day of the steamer's entry at the Custom House, less all charges saved, steamer being only responsible for such part of the goods as have been actually delivered to the steamer at the port (A) first abovementioned, and steamer not liable for any loss or damage that may have occurred before such delivery, while agreeing to promptly present to inland carriers for account of owners of goods any claims for shortage or loss or damage that may have occurred before delivery of goods at the port (A) first abovementioned.

12. That merchandise on wharf awaiting shipment or delivery be at shipper's risk of loss or damage not happening through the fault or negligence of the owner, master, agent or manager of the steamer, any custom of the port to the contrary notwithstanding.

13. That this bill of lading, duly indorsed, be given up to the steamer's consignee in exchange for delivery order.

Back of Form 8

to the port of export on a railroad bill of lading and then rebilling it by obtaining an ocean bill of lading, may prefer to bill it through to the foreign port of entry or even to an interior destination in a foreign country. In that case he obtains a through or so-called *export bill of lading* from the rail carrier. The contract contained in such a bill of lading is threefold. One part covers the rail shipment to the port of export

14. That freight prepaid will not be returned, goods lost or not lost.

15. That parcels for different consignees collected or made up in single packages addressed to one consignee, pay full freight on each parcel.

16. That freight payable on weight is to be paid on gross weight landed from ocean steamer, unless otherwise agreed to or herein otherwise provided, or unless the carrier elects to take the freight on the bill of lading weight, but inland freight and charges paid on wheat, peas, maize, or other grain, or seed, or other bulk articles, from point of shipment to seaboard, shall be paid by consignee at destination on the weight delivered on board ocean steamer.

17. It is stipulated that in case the whole or any part of the articles specified herein be prevented by any cause from going in the first steamer leaving after the arrival of such articles at said port, the carrier is only bound to forward them by succeeding steamers employed in the steamship line, or if deemed necessary by said carrier it may forward them in other steamers.

18. That the property covered by this bill of lading is subject to all conditions expressed in the regular forms of bills of lading in use by the steamship company at time of shipment, and to all local rules and regulations at port of destination not expressly provided for by the clauses herein.

19. That if the goods are destined beyond the port (B) second above mentioned, the transhipment to connecting carrier shall be at the risk of the owner of the goods, but at steamer's expense, and that all liability of the Steamship Company hereunder terminates on due delivery to connecting carrier.

III.—With respect to the service after delivery at the port (B) second above mentioned, and until delivery at ultimate destination if destined beyond that port, it is agreed that:—

1. In case the regular steamship service to final port of delivery should for any reason be suspended or interrupted, the carrier at the option of the owner or consignee of the goods, or the holder of the bill of lading, may forward the goods to the nearest available port, this to be considered a final delivery; or to store them at the port (B) second above mentioned at the risk and expense of the goods until regular service to final port of destination is opened again.

2. That the property shall be subject exclusively to all the conditions of the carrier or carriers completing the transit; the duty of notification above provided for shall fall exclusively within the obligation of the carrier completing the transit, and no prior carrier shall be responsible for the fulfilment of that obligation.

AND FINALLY, in accepting this bill of lading, the shipper, owner and consignee of the goods, and the holder of the bill of lading, agree to be bound by all of its stipulations, exceptions and conditions, whether written or printed, as fully as if they were all signed by such shipper, owner, consignee or holder.

IN WITNESS WHEREOF, The Agent signing, on behalf of the said The .... (*ISSUING*) ..... *Company, and of the said Ocean Steamship Company, or Ocean Steamer and her owner, severally and not jointly, hath affirmed to* .....*Bills of Lading all of this tenor and date, one of which Bills being accomplished, the others to stand void.*

Dated at.....this.....day of.....191

.....Agent.

On behalf of Carriers severally but not jointly.

NOTE.—The following form of Ocean Abstract may be printed on the back of the Export Bill of Lading, or may be printed on separate slips, for the use of agents at the seaboard, at the option of the issuing companies.

To be used exclusively by the agents at the seaboard and not by the maker of the bill of lading.

Bill of Lading No.....Lot No.....Contract No.....

.....19....

Through Rate.....£.....

Ship's Proportion.....£.....

Inland Proportion.....£.....

Advance Charges.....£.....£.....

Total.....£.....

Back of Form 8 (concluded)

and contains the essential clauses of the usual inland bill of lading. The second part covers the ocean voyage and is the same as the usual contract contained in an ocean bill of lading. The third part of the through bill of lading contract, which covers the shipment from the foreign port of entry to interior destination, provides that "the property shall be subject exclusively to all the conditions of the carrier or carriers completing the transit." (See Form 8.)

Ocean bills of lading usually contain a clause to the effect that none will be issued unless the shipper agrees to pay at

AMERICAN LINE

PHILADELPHIA AND LIVERPOOL.

INTERNATIONAL MERCANTILE MARINE CO.
PHILADELPHIA, PA.

AMERICAN LINE,
24 AND 27 JAMES ST
LIVERPOOL, ENG.

No. 250 PHILADELPHIA, ... 19

RECEIVED, in apparent good order and condition, from .....

for shipment per S. S. "....." (Voy.....)
bound for Liverpool, the undermentioned Goods, to be carried subject to all conditions, exceptions and liberties contained in the East Bound Bill of Lading of the Company for the time being in use from the Steamer's port of departure.

Marks and Numbers.	Description of Packages and Contents.
Consignee.	Freight, £ Charges, Total, £

The Company will not be liable for any parcel or package exceeding $10.00 in value, unless such value be declared by the shipper upon delivery to the Company and freight paid thereon as may be required.

AMERICAN LINE.

Per .....

Form 9.—Parcel Receipt

least a minimum freight charge. The minimum may be the charge for one, one and a half, or less, tons or other quantity of freight, or a fixed amount. This has often made it expensive to ship abroad small parcels except through freight forwarders or international express companies. At the present time, however, numerous ocean carriers are issuing *parcel receipts* so as to facilitate the shipment of small packages of low value that would find the regular minimum bill of lading burdensome. Although originally intended for export samples only, they are at times issued for the shipment of general merchandise. They restrict the dimensions, weights and value of the merchandise shipped, and reserve to the ocean carrier the right to refuse the acceptance of packages when a suspicion of unfairness arises. (See Form 9.)

In case of ocean shipments in tramp or chartered vessels the basic shipping paper is the *charter party*, or agreement between the charterer and the vessel owner or his agent. It frequently is a lengthy document, containing detailed clauses as to the tonnage, capacity and condition of the vessel, loading and discharging ports, ports of call, methods of loading and discharge, signature of bills of lading, employment of stevedores, free time within which vessels shall be loaded and the demurrage per day payable thereafter, liability and insurance, the commission and freight brokerage due the ship broker, and the rate of compensation. Charter parties are of two general kinds, the trip and the time charter. The former is issued when the vessel is chartered for a single voyage, and the latter when it is chartered for an agreed period of time. (See Form 10.)

In case of the trip charter party, the owner retains possession of, and operates, his vessel, and his payment is based upon the amount of cargo transported, at so much per ton, or per 100 pounds, quarter, bushel, or other cargo unit. The time charter party, on the contrary, places the vessel in the possession of the charterer. It may, however, provide that the owner shall man and provision the vessel. In ocean traffic the usual practice is for the charterer to pay to the owner an

PHILADELPHIA GRAIN CHARTER PARTY—BERTH FORM—STEAMER

Approved 18 July, 1913, by the Executive Committee of the Board of Directors of The Philadelphia Maritime Exchange under authority granted by the Board 23 June, 1913.

Philadelphia,.....19I.....

It is this day Mutually Agreed, *Between*.....

Agents for.....Owners of the.....Steamship

.....of....., built..... .....at.....

of.....net tons register, or thereabouts, and guaranteed.....Qrs. of 480 lbs. of Heavy Grain 10 per cent. more or less capacity and/or .....

Qrs. of 320 lbs. of Oats, 10 per cent. more or less capacity classed.....

in.....now.....

.....and....., Charterers. That the said Steamship being tight, staunch and strong, and in every way fitted for the voyage, with liberty to take outward cargo to.....

for owners' benefit, shall with all convenient speed sail and proceed to.....

.....

and there load, always afloat, from said Charterers, or their agents, a full and complete cargo, subject to limits above guaranteed, of WHEAT, and/or INDIAN CORN, and/or RYE, and/or OATS. Orders as to loading port to be given within 24 hours after receipt of notice of arrival a port of call in the United States, if in ballast; or before 12 o'clock noon on the day of completion of discharge at a port in the United States, if with cargo, except on Saturdays, when orders shall be given before 11 o'clock A. M. If not discharged on the day on which demand for loading port is made, vessel to ask again for orders. Vessel to load under inspection of Underwriters' Agents, at her expense and to comply with their rules, not exceeding what she can reasonably stow and carry over and above her Cabin, Tackle, Apparel, Provisions, Fuel and Furniture, and being so loaded shall therewith proceed to:

ANTWERP, AMSTERDAM, ROTTERDAM, LIVERPOOL, GLASGOW, BELFAST, DUBLIN, HULL, NEWCASTLE, LEITH, PLYMOUTH, SOUTHAMPTON, LONDON (excluding Tilbury Docks), or AVONMOUTH, (if ordered to Avonmouth, vessel to discharge in accordance with the rules of the Bristol Channel & West of England Corn Trade Association)

.....

.....

one Port only, as ordered on signing Bills of Lading, and deliver the same, agreeable to Bills of Lading, on being paid freight, in British Sterling or its equivalent, as follows: (but free of extra freight in Bills of Lading if ordered to London).

.....shillings and.....pence ( ) Per quarter of 480 lbs. of Heavy Grain,

.....shillings and.....pence ( ) Per quarter of 320 lbs. of Oats,

all English weights delivered.

Form 10.—Charter Party

Charterers have the privilege of ordering vessel to.....

in which case rate of freight shall be.....

pence per quarter more than the above rate.....

.....

.....

Captain to call at Charterers' Office, as requested, and sign Bills of Lading, as presented, without prejudice to this Charter Party, any deficiency to be paid at Port of Loading in cash, less insurance, and any surplus over and above estimated freight to be settled there before the Vessel clears at the Custom House, by Captain's draft, in Charterers' favor, upon Consignee, payable five days after arrival at Port of Discharge.

Stevedore employed by vessel to be approved by Charterers as to experience and competency.

Steamer to be loaded according to berth terms, with customary berth despatch, and if detained longer than five days, Sundays and Holidays excepted, Charterers to pay demurrage at the rate of four pence (4d.) British Sterling or its equivalent per net register ton per day, or pro rata, payable day by day, provided such detention shall occur by default of Charterers or their agents.

Notification of the Vessel's readiness must be delivered at the office of the Charterers, or their agents, at or before 4 P. M. (or at or before 12 M., noon, if on Saturday), Vessel also having been entered at the Custom House, accompanied by pass of the inspector of Vessel's readiness in all compartments, and the lay-days will then commence at 7 A. M. on the next business day.

Time for loading, if required by Charterers, not to commence before the.....

.....day of.....19.....

Should the Steamer not be passed by Board of Underwriters' Surveyor as ready for cargo at her loading Port before 12 o'clock noon on the.....day of

.....19....., followed by the presentation of said Surveyor's pass to the Charterers, or their agents, at their office before said hour, the Charterers, or their agents, shall at said hour and at any time after not later than the presentation of the Surveyor's pass at said office, have the option of canceling this Charter Party.

It is also mutually agreed that this contract shall be completed and be superseded by the signing of Bills of Lading on the same form as in use by regular line steamers from loading port to port of destination; or, if port of destination be one to which there is no regular line of steamers from loading port, this contract shall be superseded by the signing of Bills of Lading in the form customary for such voyages for grain cargoes, which Bills of Lading shall however contain the following clauses:

1. "It is also mutually agreed that the Carrier shall not be liable for loss or damage occasioned by causes beyond his control, by the perils of the seas or other waters, by fire from any cause or wheresoever occurring, by barratry of the master or crew, by enemies, pirates or robbers, by arrest and restraint of princes, rulers or people, by explosion, bursting of boilers, breakage of shafts or any latent defect in hull, machinery or appurtenances, by collisions, stranding or other accidents of navigation of whatsoever kind (even when occasioned by the negligence, default or error in judgment of the pilot, master mariners or other servants of the ship owner, not resulting, however, in any case, from want of due diligence by the owners of the ship or any of them, or by the Ship's Husband or Manager)."

Back of Form 10

agreed rate per dead-weight ton, and also to furnish the fuel and pay all expenses incurred at the ports, except crew and provision expenses. A time charter party may, however, base the rate of pay upon the vessel's net register tonnage.

---

2. "General Average shall be payable according to York/Antwerp Rules. Average Bond with values declared therein to be signed, also sufficient security to be given as required by master or agents. If the owner shall have exercised due diligence to make the steamer in all respects seaworthy and to have her properly manned, equipped and supplied, it is hereby agreed that in case of danger, damage or disaster, resulting from faults or errors in navigation or in the management of the steamer, or from any latent defect in the steamer, her machinery or appurtenances, or from unseaworthiness, whether existing at the time of shipment or at the beginning of the voyage (provided the latent defect or the unseaworthiness was not discoverable by the exercise of due diligence), the consignees or owners of the cargo shall, nevertheless, pay salvage, and any special charges incurred in respect of the cargo, and shall contribute with the ship owner in General Average to the payment of any sacrifices, losses or expenses of a General Average nature that may be made or incurred for the common benefit, or to relieve the adventure from any common peril, all with the same force and effect, and to the same extent, as if such danger, damage or disaster had not resulted from, or been occasioned by, faults or errors in navigation or in the management of the vessel, or any latent defect or unseaworthiness."

3. "It is also mutually agreed that this contract is subject to all the terms and provisions of, and all the exemptions from liability contained in the Act of Congress of the United States, approved on the 13th day of February, 1893, and entitled 'An Act Relating to Navigation of Vessels, etc.;'"

4. "Cargo to be received at destination as fast as vessel can deliver during ordinary working hours, any custom of the port to the contrary notwithstanding; but receivers of the cargo are in no case obliged to take delivery at night without their consent, and in any event the steamer must bear all extra expenses incurred by working at night."

5. "In the event of steamer being ordered to discharge in Scandinavia, The Sound, Baltic or Gulf of Finland, or, if ordered inside Gibraltar, to have the privilege of coaling en route."

6. "Vessel to have a lien on the cargo for all freight, dead freight, demurrage or average."

Charterers' liability under this Charter to cease on cargo being shipped.

The said Charterers, or their agents, are to have the privilege of transferring this Charter to others (guaranteeing to the ship owner the due fulfillment of this Charter).

Cash for Vessel's ordinary disbursements at Port of Loading to be advanced by Charterers, if required by Master, at current rate of exchange, subject to insurance and two and a half per cent. commission.

A commission of five per cent. and the customary Freight Brokerage is due on signing of this Charter Party to.....
Vessel lost or not lost, whose agents at Port of Loading are to attend to ship's business on customary terms.

.....Witness to the signature of .....
As Agents by cable authority of
.....

.....Witness to the signature of .....

WE HEREBY CERTIFY, That this is a true and correct copy of the original Charter Party on file in our office.

Back of Form 10 (concluded)

In 1917, after the United States declared war to exist, exports of numerous commodities were subjected to government license. Exporters were required to secure from the Bureau of Export Licenses of the War Trade Board licenses for all proposed shipments abroad.

The most complicated set of papers or forms used in the foreign trade are those required in the entering of imports through the custom houses. The requirements are so technical that most importers in the United States depend upon custom-house brokers to obtain possession of their imports or engage

specialists who day by day, even hour by hour, keep in close and intimate touch with officials, with the changing procedure and rulings, and with the peculiar life of the custom house.[1] . . . There are several hundred different blank forms involved in all the complex operations of importing the infinity of goods required by our civilization. Some of these forms are supplied free of charge by the Government; others are sold by privileged individuals, some are obtainable in one office, others in another; some are printed privately by importers; all must be filled out by the broker without assistance or suggestion from the officials.[2]

It is not sufficient for the importer to present the ocean bill of lading, exporter's invoice and consular invoice, certified by an American consul, which he has obtained directly or indirectly from the foreign exporters. The custom-house forms which need to be filled out are too numerous to reproduce or even to enumerate. Those most frequently required are the *informal entry and permit on appraisement blank,* the *importer's oath on entry and payment of duties,* the *importer's declaration when merchandise has been actually purchased,* the *oath on entry of domestic merchandise returned,* and the *carrier's manifest of merchandise in bond,* which is used when imports are forwarded to, and the duty on them is to be paid at, interior destinations. Much of the needless complexity

[1] B. O. Hough, *Ocean Trade and Traffic*, 241.
[2] *Ibid.*, 244.

attached to the entry of imports could probably be eliminated by the application of efficient business methods.

Ship's Papers

Papers differing from the shipper's or shipping papers mentioned above in that they are not issued by or to the shipper are the various so-called "ship's papers," which ocean carriers are required to have in the conduct of their business. Vessels in the foreign trade are provided with a *ship's manifest*, on which all the consignments on board are listed, together with the quantity, marks, numbers and destination of each. The manifest of a vessel carrying a cargo of general merchandise may contain many sheets and constitute a very bulky document. Different forms of ship's manifest are used, but the copy reproduced in Form 11 may be regarded as typical. It is used for various purposes and is the vessel's principal cargo document. A copy is filed with the Collector of the Port before a vessel clears from an American port, and likewise when a vessel enters ports. This copy, together with the individual manifests filed by the separate shippers, becomes the basis of the official foreign trade statistics of the government, and, in the case of imports, serves as a check upon import duties. One or more copies are carried with the vessel and serve as one of the available means of cargo identification in case of search or detention, and also serve as a routing document. Another copy is filed with the authorities at the foreign port of entry or clearance for the same reasons that the United States Government requires a copy. The manifest also is a basis for freight accounting in the same way that the railroad waybill underlies railroad freight accounts.

Before clearing from an American port it is necessary to obtain a *bill of health* from the port authorities and have it certified by the consul of the foreign country of destination. As is shown in Form 12, it is a certification that "no plague nor any other dangerous or contagious disease in an epidemic form at present exists in the said port." A vessel before

Form 23.

WESSEL, DUVAL & CO.,
VALPARAISO AND NEW YORK.

THE WEST COAST LINE.

TO CHILE, PERU AND ECUADOR.

Manifest of cargo laden on board the Br. S.S. Dorothy whereof Wilson is Master register 2426 tons, which cargo was taken on board at New York and is destined for Punta Arenas Sept. 15th 1910

No. of B. L.	MARKS	NUMBERS	PACKAGES AND CONTENTS	Gross Weight in Kilograms	SHIPPER	CONSIGNEE	PORT OF DESTINATION
100	A. R Punta Arenas	1	1 Case Locomotive Repairs 17'-10"	632	Wessel Duval & Co	Mariano Edwards Administrador de la "Mina Loreta"	Punta Aren
101	Stover D Gallegos Punta Arenas	1661/62	2 Cases Wind Mill Repair Parts 4'-10"	135	J. W. Hampton, Jr & Co	Braun & Blanchard	do
102	SARA Punta Arenas	541	1 Case Watches S.S. 6"	5½	Wessel Duval & Co	Mr. Sara Braun de Valenzuela	do
103	C. R. I / C O S Punta Arenas	4047	1 Case Wagon Poles 9'-4"	54	—— " ——	La Sociedad Explotadora de Tierra del Fuego	do
		4048	1 " Pole Sticks & Whiffles 6'-5"	46			
	~~B. O. R~~ E S P	1632	1 " Axes 1'-4"	60			
		1633	1 Bdle Handles for Same 1'-11"	18			
			Machine 198'11"	2154			
			0'-6"	4½			
				191			

Form 11.—Ship's Manifest

clearing to a foreign port must further obtain a certified copy of the *shipping articles,* which is the official agreement between master and crew for the voyage. It is signed by the crew and master before a shipping commissioner, or in case of voyages to certain specified countries and at ports where no commissioner is located, before the master. "It contains the name of each member of the crew, the position held by each, his time of service and rate of wages, the scale of provisions agreed to, and other information for the safeguarding of the crew."[1] (See Form 13.) The master is also required to deposit a *crew list* with the Collector of the Port and to obtain a certified copy for use on the voyage. "It contains the name and description of each member of the crew, with a notation of his place of birth and residence. . . . Both the articles and crew list of American vessels must be produced before any consul or other commercial agent of the United States upon request."[2] (See Form 14.) Vessels engaged in the foreign trade are, moreover, required to carry a *ship's register* or *measurement certificate,* such as was described in Chapter IX (see Form 1); and in case they are to navigate either the Suez or Panama Canal they likewise carry special canal measurement certificates.

When entering port the master is required to present a *list of stores,* which contains a list of the provisions and similar articles remaining on board the vessel at the end of her voyage; and if the vessel carries passengers it has a *passenger list,* which is shown to the custom-house officials when entering port either in the United States or abroad. American vessels must also obtain an official *inspection certificate* from the United States Steamboat-Inspection Service. (See Form 15.) The form of the inspection certificates issued to American steamers, to sailing vessels and barges carrying passengers for hire, to seagoing barges of 100 tons gross or over, and to foreign passenger steamers differ in some respects. In times of war the vessels may likewise carry copies of the bills of lading

[1] Johnson and Huebner, *Export Shipping,* 42.
[2] *Ibid.*

Cat. No. 1380
Art. 132, Customs Regulations of 1899
COMMERCE AND LABOR CIRCULAR No. 1

DEPARTMENT OF COMMERCE AND LABOR
BUREAU OF NAVIGATION

THE UNITED STATES OF AMERICA.

BILL OF HEALTH.

*Custom House, Port of*_____

To all to whom these Presents shall come:

Whereas, *the*_____ *of*_____, *of which*_____ *is Master, is now ready to depart from the Port of*_____ *for*_____, *and other places beyond the sea, with*_____ *persons, including the Master of the said vessel:*

We, therefore, *by these presents, do make known and Certify that no plague, nor any other dangerous or contagious disease in an epidemic form, at present exists in the said Port.*

*GIVEN under our hands and seals of office, this*_____ *day of*_____, *190*—.

_____
Collector of Customs.

_____
Naval Officer.

Form 12.—Bill of Health

FORM 705 A

SHIPPING ARTICLES

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION
SHIPPING SERVICE

Notice is hereby given that Section 4519 of the U. S. Revised Statutes makes it obligatory on the part of the master of a merchant vessel of the United States, at the commencement of every voyage or engagement, to cause a legible copy of the agreement (omitting signatures) to be placed or posted up in such part of the vessel as to be accessible to the crew, under a penalty not exceeding ONE HUNDRED DOLLARS.

EUGENE T. CHAMBERLAIN,
Commissioner of Navigation.

ADVANCE WAGES AND ALLOTMENTS.

SEC. 10 (a) That it shall be, and is hereby, made unlawful in any case to pay any seaman wages in advance of the time when he has actually earned the same, or to pay such advance wages, or to make any order, or note, or other evidence of indebtedness therefor to any other person, or to pay any person, for the shipment of seamen when payment is deducted or to be deducted from a seaman's wages. Any person violating any of the foregoing provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than $25 nor more than $100, and may also be imprisoned for a period of not exceeding six months, at the discretion of the court. The payment of such advance wages or allotment shall in no case except as herein provided absolve the vessel or the master or the owner thereof from the full payment of wages after the same shall have been actually earned, and shall be no defense to a libel suit or action for the recovery of such wages. If any person shall demand or receive, either directly or indirectly, from any seaman or other person seeking employment, as seaman, or from any person on his behalf, any remuneration whatever for providing him with employment, he shall for every such offense be deemed guilty of a misdemeanor and shall be imprisoned not more than six months or fined not more than $500.

(b) That it shall be lawful for any seaman to stipulate in his shipping agreement for an allotment of any portion of the wages he may earn to his grandparents, parents, wife, sister, or children.

(c) That no allotment shall be valid unless in writing and signed by and approved by the shipping commissioner. It shall be the duty of the said commissioner to examine such allotments and the parties to them and enforce compliance with the law. All stipulations for the allotment of any part of the wages of a seaman during his absence which are made at the commencement of the voyage shall be inserted in the agreement and shall state the amounts and times of the payments to be made and the persons to whom the payments are to be made.

(d) That no allotment except as provided for in this section shall be lawful. Any person who shall falsely claim to be such relation, as above described, of a seaman under this section shall for every such offense be punished by a fine not exceeding $500 or imprisonment not exceeding six months, at the discretion of the court.

(e) That this section shall apply as well to foreign vessels while in waters of the United States, as to vessels of the United States, and any master, owner, consignee, or agent of any foreign vessel who has violated its provisions shall be liable to the same penalty that the master, owner, or agent of a vessel of the United States would be for similar violation.

The master, owner, consignee, or agent of any vessel of the United States, or of any foreign vessel seeking clearance from a port of the United States, shall present his shipping articles at the office of clearance, and no clearance shall be granted any such vessel unless the provisions of this section have been complied with.—*Act of June 26, 1884, as amended by the Acts of June 19, 1886; December 21, 1898; April 26, 1904; June 28, 1906, sec. 4, and March 4, 1915.*

VESSELS OF UNITED STATES MUST HAVE SLOP-CHESTS, ETC.

SEC. 11. That every vessel mentioned in section forty-five hundred and sixty-nine of the Revised Statutes shall also be provided with a slop-chest, which shall contain a complement of clothing for the intended voyage for each seaman employed, including boots or shoes, hats or caps, under clothing and outer clothing, oiled clothing, and everything necessary for the wear of a seaman: also a full supply of tobacco and blankets. Any of the contents of the slop-chest shall be sold, from time to time, to any or every seaman applying therefor, for his own use, at a profit not exceeding ten per centum of the reasonable wholesale value of the same at the port at which the voyage commenced. And if any such vessel is not provided, before sailing, as herein required, the owner shall be liable to a penalty of not more than five hundred dollars. The provisions of this section shall not apply to vessels plying between the United States and the Dominion of Canada, Newfoundland, the Bermuda Islands, the Bahama Islands, the West Indies, Mexico, and Central America.—*Act June 26, 1884.*

Every vessel bound on any foreign voyage exceeding in length fourteen days shall also be provided with at least one suit of woolen clothing for each seaman, and every vessel in the foerign or domestic trade shall provide a safe and warm room for the use of seamen in cold weather. Failure to make such provision shall subject the owner or master to a penalty of not less than one hundred dollars.—*Sec. 4572, R. S., as amended by the Act of December 21, 1898.*

Vessels engaged in the whaling or fishing business are not covered by the above provisions of law, or by the regulations below regarding scale of provisions.

CORPORAL PUNISHMENT PROHIBITED.

Flogging and all other forms of corporal punishment are hereby prohibited on board of any vessel, and no form of corporal punishment on board of any vessel shall be deemed justifiable, and any master or other officer thereof who shall violate the aforesaid provisions of this section, or either thereof, shall be deemed guilty of a misdemeanor, punishable by imprisonment for not less than three months nor more than two years. Whenever any officer other than the master of such vessel shall violate any provision of this section, it shall be the duty of such master to surrender such officer to the proper authorities as soon as practicable, provided he has actual knowledge of the misdemeanor, or complaint thereof is made within three days after reaching port. Any failure on the part of such master to use due diligence to comply herewith, which failure shall result in the escape of such officer, shall render the master or vessel or the owner of the vessel liable in damages for such flogging or corporal punishment to the person illegally punished by such officer.

ARTICLES OF AGREEMENT BETWEEN MASTER AND SEAMEN IN THE MERCHANT SERVICE OF THE UNITED STATES.

Required by Act of Congress, Title LIII, Revised Statutes of the United States.

Office of the U. S. Shipping Commissioner of the Port of....., 19

IT IS AGREED between the Master and seamen, or mariners, of the .....

.....*of which*.....

is at present Master, or whoever shall go for Master, now bound from the Port of (1)....., *to*

.....

.....

.....

.....

and such other ports and places in any part of the world as the Master may direct, and back to a final port of discharge in the United States, for a term of time not exceeding.....*calendar months.*(2)

GOING ON SHORE IN FOREIGN PORTS IS PROHIBITED EXCEPT BY PERMISSION OF THE MASTER.

No dangerous weapons (3) or grog allowed, and none to be brought on board by the crew.

SCALE OF PROVISIONS to be allowed and served out to the Crew during the voyage in addition to the daily issue of lime and lemon juice and sugar, or other antiscorbutics in any case required by law.

	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Water.....quarts	5	5	5	5	5	5	5
Biscuit.....pound	½	½	½	½	½	½	½
Beef, salt.....pounds	.....	.....	1¼	.....	1¼	.....	1¼
Pork, salt.....pound	.....	1	.....	1	.....	1	.....
Flour.....pound	½	.....	½	.....	½	.....	.....
Canned meat.....pound	1	.....	.....	1	.....	.....	.....
Fresh bread.....pounds	1½	1½	1½	1½	1½	1½	1½
Fish, dry, preserved, or fresh pound	.....	.....	.....	.....	.....	1	.....
Potatoes or yams.....pound	1	1	1	1	1	1	1
Canned tomatoes.....pound	½	.....	.....	.....	.....	½	.....
Pease.....pint	.....	.....	⅓	.....	.....	⅓	.....
Beans.....pint	.....	⅓	.....	⅓	.....	.....	.....
Rice.....pint	.....	⅓	.....	.....	.....	.....	⅓
Coffee (green berry).....ounce	¾	¾	¾	¾	¾	¾	¾
Tea.....ounce	⅛	⅛	⅛	⅛	⅛	⅛	⅛
Sugar.....ounces	3	3	3	3	3	3	3
Molasses.....pint	½	.....	½	.....	½	.....	.....
Dried fruit.....ounces	3	.....	3	.....	3	.....	.....
Pickles.....pint	.....	¼	.....	¼	.....	¼	.....
Vinegar.....pint	.....	.....	½	.....	.....	.....	¼
Corn meal.....ounces	4	.....	.....	.....	4	.....	.....
Onions.....ounces	4	.....	.....	.....	4	.....	4
Lard.....ounce	1	1	1	1	1	1	1
Butter.....ounce	2	2	2	2	2	2	2
Mustard, pepper, and salt sufficient for seasoning.							

SUBSTITUTES.

One pound of flour daily may be substituted for the daily ration of biscuit or fresh bread; two ounces of desiccated vegetables for one pound of potatoes or yams; six ounces of hominy, oatmeal, or cracked wheat, or two ounces of tapioca, for six ounces of rice; for six ounces of canned vegetables for one-half pound of canned tomatoes; one-eighth of an ounce of tea for three-fourths of an ounce of coffee; three-fourths of an ounce of coffee for one-eighth of an ounce of tea; six ounces of canned fruit for three ounces of dried fruit; one-half ounce of lime juice for the daily ration of vinegar; four ounces of oatmeal or cracked wheat for one-half pint of corn meal; two ounces of pickled onions for four ounces of fresh onions.

When the vessel is in port and it is possible to obtain the same, one-and-one-half pounds of fresh meat shall be substituted for the daily rations of salt and canned meat; one-half pound of green

cabbage for one ration of canned tomatoes; one-half pound of fresh fruit for one ration of dried fruit. Fresh fruit and vegetables shall be served while in port if obtainable. The seamen shall have the option of accepting the fare the master may provide, but the right at any time to demand the foregoing scale of provisions.

The foregoing scale of provisions shall be inserted in every article of agreement, and shall not be reduced by any contract, except as above, and a copy of the same shall be posted in a conspicuous place in the galley and in the forecastle of each vessel.

And the said crew agree to conduct themselves in an orderly, faithful, honest, and sober manner and to be at all times diligent in their respective duties, and to be obedient to the lawful commands of the said Master, or of any person who shall lawfully succeed him, and of their superior officers, in everything relating to the vessel, and the stores and cargo thereof, whether on board, in boats, or on shore; and in consideration of which service to be duly performed the said Master hereby agrees to pay to the said crew, as wages, the sums against their names respectively expressed, and to supply them with provisions according to the foregoing scale. And it is hereby agreed, that any embezzlement or willful or negligent destruction of any part of the vessel's cargo or stores shall be made good to the owner out of the wages of the person guilty of the same. And if any person enters himself as qualified for a duty which he proves himself incompetent to perform, his wages shall be reduced in proportion to his incompetency. And it is also agreed that if any member of the crew considers himself to be aggrieved by any breach of the agreement or otherwise, he shall represent the same to the Master or officer in charge of the ship in a quiet and orderly manner, who shall thereupon take such steps as the case may require.

It is also agreed that the crew shall load and discharge cargoes, keep their respective quarters clean, and work on the day of discharge until 5 o'clock P. M.; that any dispute relative to wages, provisions and fines between the Master, or any officer of the vessel, and any member of the crew shall be submitted to a U. S. Shipping Commissioner or Consul, and that any decision rendered by him shall be binding upon both parties and shall, in any legal proceeding which may be taken in the matter before any court of justice, be deemed conclusive of the rights of the parties as to such question or subject of dispute.

Attest:

.....

.....

.....

The authority of the Owner or Agent for the allotments mentioned within is in my possession.

..... { *Shipping Commissioner or*
{ *Consular Officer*

This is to be signed if such an authority has been produced, and to be scored across in ink if it has not.

IT WITNESS WHEREOF the said parties have subscribed their names on the other side or sides hereof on the days against their respective signatures mentioned.

Signed by....., *Master, on the*.....*day of*.....*19*...

		THESE COLUMNS TO BE FILLED UP AT THE END OF THE VOYAGE.		
DATE OF COMMENCEMENT OF VOYAGE.	PORT AT WHICH VOYAGE COMMENCED.	DATE OF TERMINATION OF VOYAGE.	PORT AT WHICH VOYAGE TERMINATED.	DATE OF DELIVERY OF LISTS TO SHIPPING COMMISSIONER.

I hereby declare to the truth of the entries in this Agreement and account of crew, etc.

....., *Master.*

1. Here the voyage is to be described, and the places named at which the ship is to touch; or, if that can not be done, the general nature and probable length of the voyage is to be stated, and the port or country at which the voyage is to terminate.
2. If these words are not necessary they must be stricken out.
3. Sec. 4608, R. S., prohibits the wearing of sheath-knives on shipboard, and the Master informs the crew of this law.

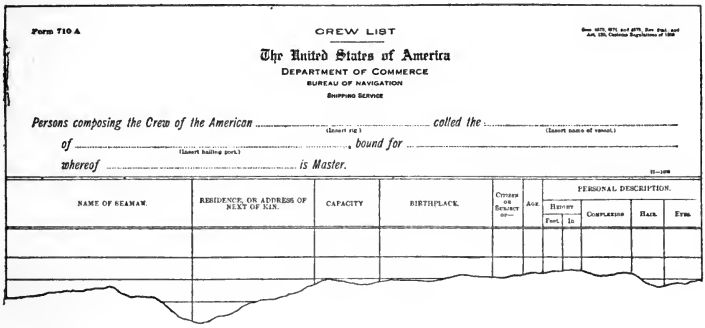
N. B.—Forms must not be unstitched. No leaves may be taken out of it, and none added or substituted. Care should be taken at the time of engagement that a sufficiently large form is used. If more men are engaged during the voyage than the number for whom signatures are provided in this form, an additional form should be obtained and used.

Any Erasure, Interlineation, or Alteration in this Agreement will be void, unless attested by a Shipping Commissioner, Consul-General, Consul, or Consular Agent, to be made with the consent of the persons interested.

Form 13 (concluded)

and shipper's invoices covering the cargo on board, and special documents such as *passports, Mediterranean passports* and *sea-letters.*

When all legal requirements have been met, a vessel clear-



Form 710 A

CREW LIST

The United States of America

DEPARTMENT OF COMMERCE

BUREAU OF NAVIGATION

Shipping Service

Persons composing the Crew of the American ..... (Insert no.) *called the* ..... (Insert name of vessel.)

of ..... (Insert sailing port.) *, bound for* .....

whereof ..... *is Master.*

NAME OF SEAMAN.	RESIDENCE, OR ADDRESS OF NEXT OF KIN.	CAPACITY	BIRTHPLACE.	CITIZEN OR SUBJECT OF—	AGE.	PERSONAL DESCRIPTION.				
						HEIGHT		COMPLEXION.	HAIR.	EYES.
						Feet.	In.			

Form 14.—Crew List

ing for a foreign port obtains an official *clearance* from the Collector of the Port. (See Form 16.) When at sea the ship's master is required to keep an official *log book*, the contents of which are specified by law.

REFERENCES

BÄCHER, E. L. *Export Technique* (1916).
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OWEN, D. *Ocean Trade and Shipping,* chap. v (1914).

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Sec. 4201, Rev. Stats.
(Ed. 12-16-04—15,000)

DEPARTMENT OF COMMERCE AND LABOR
BUREAU OF NAVIGATION

Cat. No. 1378

The United States of America.

CLEARANCE OF VESSEL TO A FOREIGN PORT.

*District of*_____

*Port of*_____

These are to certify all whom it doth concern:

*That*_____
*Master or Commander of the*_____
*burden*_____*Tons, or thereabouts, mounted with*_____
*Guns, navigated with*_____*Men,*_____
_____*built, and bound for*_____
_____
*having on board*_____
_____
_____
_____
_____
_____
hath here entered and cleared his said vessel, according to law.

Given *under our hands and seals, at the Custom House of*_____
_____, *this*_____*day of*_____
*one thousand nine hundred*_____, *and in the*_____
year of the Independence of the United States of America.

_____ _____
Deputy Naval Officer. *Deputy Collector.*

Form 16.—Clearance of a Vessel to a Foreign Port

CHAPTER XIII

THE PASSENGER SERVICE

Speed and comfort of passenger vessels, 186. Safety of ocean travel, 186. Volume of passenger traffic, 189. Classification of passenger services and traffic, 190. Methods of developing passenger traffic, 193. Handling of immigrant traffic, 194. Passenger list, 197. References, 198.

THE ocean passenger service receives more attention and current discussion than the freight service does, not only because everyone is more concerned about the personal comfort and safety of himself and his friends than he is about the conditions affecting the transportation of his property, but also because the passenger service is conducted in vessels whose speed and equipment are much advertised by the many steamship companies.

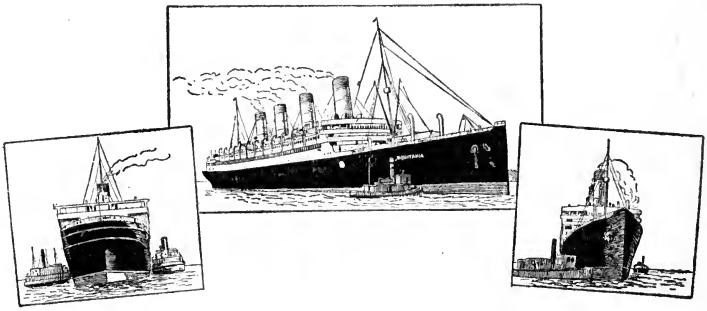
Ocean travel, moreover, is a favored theme with the popular magazines and their contributors. For these reasons the main facts regarding the ocean passenger service are rather widely known, and an extended statement will not be necessary in this treatise. The forces controlling ocean passenger fares will be discussed in a later chapter.

Though the ocean passenger service is of less importance than the freight traffic in the economy of society, the service of carrying passengers and the mails has had a greater influence than the freight business upon marine engineering and upon the introduction of technical improvements in ships. The great *desideratum* in the freight service is economy and safety; in the transportation of passengers, speed, comfort and safety; and as between economy and speed, it is to the latter that inventors have given greater study.

Increased Speed, Comfort and Safety

Invention has accomplished great results in increasing the speed of ocean steamers, and in enhancing the comforts and safety of ocean travel. During the past 50 years the time of passage across the north Atlantic has been reduced by more than one-half, and nearly as great a reduction has been made on the other important ocean routes. The *Mauretania,* in 1910, made the voyage between New York and Queenstown in 4 days, 10 hours and 41 minutes—the record north Atlantic passage to date—while in 1856 the *Persia* made the voyage in 9 days, 1 hour and 45 minutes, a record which was not bettered until a decade later.

The comforts and conveniences now obtainable aboard the best steamers are incomparably superior to those provided a

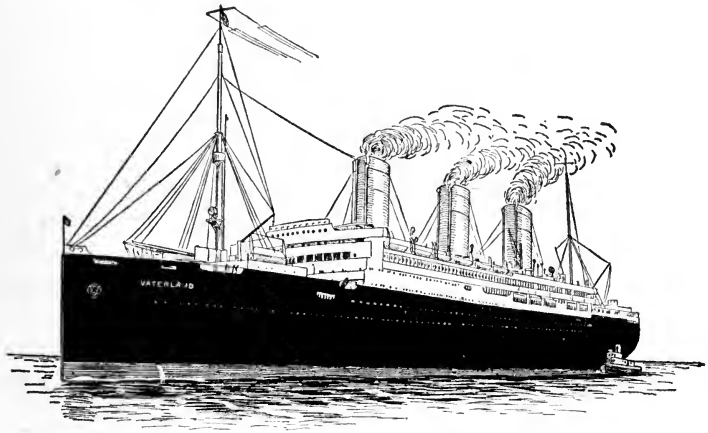


S. S. *Aquitania,* of the Cunard Line

generation ago. Every year sees some new feature added to the equipment of the ocean passenger liner, despite the fact that electricity, elevators, ice machines, cold storage, improved ventilation, luxurious dining, reading, smoking and reception rooms, swimming tanks, daily newspapers, cabin telephones, gymnasiums, children's playrooms, restaurants and cafés, barber and hair-dressing shops and numerous other auxiliaries have already made the ocean vessel a great floating hotel.

Ocean travel still has its dangers because certain "risks of

the sea" are inherent in ocean navigation, and because the popular craving for excessive speed has at times nullified the efforts to promote safety; but the dangers of sea voyages have assuredly been greatly reduced. As was shown in Chapter II, the mammoth north Atlantic liners of the Hamburg-American, White Star and Cunard lines have a gross tonnage ranging from 20,000 to 56,000 tons, and are from 500 to 912 feet long and from 65 to 100 feet wide. The *Imperator* has accommodations for no less than 4,000 passengers, and the *Vaterland* for a somewhat larger number. The *Aquitania* can



S. S. *Vaterland,* of the Hamburg-American Line

accommodate 3,250 passengers and the *Britannic* had accommodations for 2,600. Many other lines plying between the United States and Mediterranean, as well as British and west European, ports operate large passenger-carrying vessels, although their tonnage and dimensions are smaller than those of the *Bismarck, Vaterland, Imperator, Olympic* and *Aquitania* type. The passenger vessels operating over ocean routes other than the north Atlantic, likewise, are smaller, because the volume of their passenger traffic has been limited and the draft of those using the Suez Canal has been restricted by the depth of the canal; but much progress has been made.

While most of them are not in excess of 8,000 or 10,000 tons gross, the *Minnesota,* formerly of the Great Northern Steamship Company, the largest American merchant vessel afloat, was engaged in the trade between Puget Sound ports of the United States and Oriental ports until March, 1917. It has a gross tonnage of 20,718 tons and is 622 feet in length. Various large vessels ranging from 10,000 to 13,700 tons gross have also been engaged in transporting freight and passengers between the Pacific coast of the United States and the Orient. The *Ceramic,* of the Oceanic Steamship Company, operating between British and Australian ports, has a gross tonnage of 18,481 tons, is 655 feet long and has accommodations for 600 passengers, with emergency space for 220 more. The *Maloja,* constructed for the Peninsular and Oriental Steam Navigation Company for the British-Oriental traffic, has a gross tonnage of 12,431 tons, is 550 feet long and has accommodations for 650 passengers. While every increase in size by no means represents increased safety, these large and carefully equipped steamships are better able to withstand the risks of the sea than their smaller predecessors, and can provide comforts and luxuries that are impossible on smaller craft.

Ocean passenger steamers, small as well as large, are built and equipped with a view to increasing their safety. Steel hulls, transverse and longitudinal water-tight bulkheads, steel double bottoms, two-, three- and even four-screw propellers, lifeboats, rafts and other life-saving appliances in adequate number, improved appliances for lowering lifeboats, wireless telegraph plants, fire fighting arrangements, trained crews for fire fighting and manning lifeboats, recognized "rules of the road" and other safety features have greatly increased the safety of ocean travel. Some have been adopted voluntarily by the navigation companies, while others are partly the result of government regulation. Vessels, hulls, boilers, engines, etc., moreover, are subject to government inspection, and many ships are inspected by the surveyors of Lloyds or other vessel classification societies. The United States Government also charts ocean and coastwise routes, destroys derelicts, oper-

ates lighthouse and life-saving services, regulates wireless telegraphy on shore as well as at sea, flies storm signals and otherwise aids and regulates navigation so as to reduce the element of danger.[1]

Volume of Passenger Traffic

The relative extent to which passenger liners carry passengers and freight depends largely upon the total volume of traffic available. Some of the fastest transatlantic vessels serving the port of New York have exceedingly small cargo holds and depend very largely upon their passenger business. A greater number, including the largest and most recently constructed north Atlantic liners, also are mainly passenger carriers, but in addition have cargo holds of considerable capacity. Still others, particularly the passenger lines operating from ports other than New York and to non-European destinations from any of the ports of the United States, depend mainly upon their freight cargoes. Some passenger vessels have accommodations for only a small number of passengers.

The technical development of the ocean passenger service has been the consequence, and principal cause, of the rapid increase in the volume of ocean travel. Since 1880 the annual number of Americans taking cabin passage abroad has more than quadrupled, and the number of immigrants entering the United States each year has nearly trebled. In 1914 the cabin passengers departing from the seaports of the United States numbered 482,482, the number of passengers "other than cabin" was 520,120, making a total of 1,002,602. The arriving cabin passengers numbered 471,187, and the immigrants 1,218,480, making a total of 1,689,667 arrivals. The total passengers inbound and outbound in 1914 numbered 2,692,269. It is this heavy passenger traffic, over 90 per cent of which centers at the north Atlantic ports, in normal times,[2] that makes possible

[1] For discussion of government aid and regulation see chapters xxiii, xxiv, xxv.

[2] In 1912, 95 per cent; in 1913, 96 per cent; in 1914, 61.3 per cent; and in 1915, 42 per cent.

the operation of the world's greatest ocean liners. As was stated by a committee of New York steamship lines: [1]

> The combined passenger and cargo type of steamer employed by most of our transatlantic lines is superior in size and speed to any other type of steamship. The creation of this type of ship is the result of the development of the combined passenger and freight traffic between this country and Europe. The increasing passenger traffic not only of Americans visiting Europe but of Europeans coming to this country has enabled these most costly instruments of modern transportation to ply the Atlantic throughout the year. The steadily increasing immigration, together with the patronage of those who wish to revisit their homes abroad, furnishes a steady steerage traffic which demands and receives the most painstaking attention of the lines. It is the very lifeblood of the business, so far as these superior boats are concerned, without which their existence and further operation would become impossible.

Classification of Passenger Services and Traffic

It has been the custom of ocean lines to divide passengers into three well-defined classes—first class, second class and steerage. In this regard the ocean passenger business has followed the practice of the European railway passenger service rather than the service on American railroads. Although classification is carried out to some extent in railroad passenger traffic in the United States, travelers do not divide themselves into such distinct classes as they do in Europe. In the United States the great majority of people travel by what is called first class, which in reality corresponds with the second class in Europe, where most people patronize the third class, which corresponds to the second class in the United States—a class that is used so infrequently that many Americans are ignorant of its existence. Some of the north Atlantic lines have in recent years subdivided the steerage service into two classes, one class being for the immigrants, and a higher class being

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations*, II, 1358.

for steerage passengers who are not immigrants. The *Caronia* and *Carmania,* of the Cunard Line, for example, have accommodations for 1,000 immigrants and 1,000 third-class passengers. The third-class passengers may engage reserved berths and staterooms. Their accommodations are provided with bathrooms and with a separate dining saloon, and their quarters are equipped with electric fans to provide adequate ventilation. Some of the smaller ocean vessels in the north Atlantic passenger service, moreover, vary the usual classification of their cabin passengers. Instead of having separate first- and second-class passengers, they combine the two into a single class known as "cabin" passengers.

The passenger statistics stated above show that the third-class or steerage passengers far outnumber those who travel in the first and second cabins. This is further indicated in table No. 9, which shows the volume of the passenger traffic across

TABLE 9.—NUMBER OF PASSENGERS CROSSING NORTH ATLANTIC OCEAN, 1912-1915 [1]

YEAR	WESTBOUND				EASTBOUND				Grand total
	First class	Second class	Third class	Total west-bound	First class	Second class	Third class	Total east-bound	
1912.....	106,361	295,321	1,071,816	1,473,498	101,771	126,684	477,667	706,122	2,179,620
1913.....	111,078	341,378	1,413,845	1,866,301	104,396	141,196	472,781	718,373	2,584,674
1914.....	90,840	233,347	631,862	956,049	83,261	121,085	479,232	683,578	1,639,627
1915.....	20,850	68,548	120,164	209,562	18,702	47,715	241,911	308,328	517,890

[1] Statistics received from Mr. P. A. S. Franklin, President of International Mercantile Marine Company.

the north Atlantic during the years 1912 to 1915. The table is especially significant because the north Atlantic route is the only one of the great ocean highways over which the volume of passenger traffic is especially heavy. The figures for the year 1915, of course, are of little value because passenger travel between the United States and Europe was decimated by the European War. In 1913, when the volume of traffic reached its highest level, 75.7 per cent of the westbound, 65.8

per cent of the eastbound and 72.9 per cent of the total north Atlantic travel was third class or steerage. The table also shows that in 1913, 8.4 per cent of the total passengers traveled first class, and 18.7 per cent second class. In the past the practice was to carry more first- than second-class passengers, but when many of the lines undertook the improvement of the second-class service a large number of travelers availed themselves of the cheaper fares.

The steerage business is also more profitable to the steamship company. The steerage passenger pays a low rate of about one-third the average fare charged the first and second class, but his accommodations occupy little space, and the company spends relatively little on his table and his stateroom. The large passenger steamer can readily carry four or five steerage passengers for each person in the cabins, and the steerage expenses will be much less than the cabin expenses. The steerage traffic is so profitable that the steamship lines between Europe and the United States, although parties to pooling and conference arrangements, compete for this business, and the low fares and comparatively comfortable accommodations given the third class induce great numbers of poor people to migrate, that would prefer to remain in their native land if the dangers and discomforts of travel were greater. The service of transporting emigrants from the interior of Europe to America and elsewhere is highly organized by the steamship companies and by other agencies, and the ease and cheapness of the steerage passage, as well as the allurements of life in a new country, steadily swell the volume of ocean travel.

Until recent years steamship companies gave most attention to improving the accommodations afforded the first-class passengers, and but little attention was given to making the second and third classes attractive and comfortable. During the past few years, however, some of the large steamship companies on the north Atlantic have done as much to improve the second and third classes as the first class. The largest profits come from the traffic below the second class, and the

steamship companies have discovered that the volume of low-class traffic may be largely increased.

The United States Government regulates the accommodations of the third class or steerage passengers. The so-called Passenger Act of 1882, as amended to date, regulates the maximum number of steerage passengers that may be carried on American vessels and tends to safeguard reasonable accommodations by prescribing the minimum space per passenger on the various steerage decks. It regulates light and air, provisions, medical attention and cleanliness, the privacy of passengers, the carriage of cargo and stores on steerage decks, the keeping of a passage list, and the payment of fees to the collector of customs in case of the death of steerage passengers. It also provides for an inspection, under the direction of the United States customs collectors, of all vessels carrying steerage passengers with a view to administering effectively the provisions of the passenger act.[1] The United States Government also supervises the arrangements that the ocean and rail carriers have made at New York for the through transportation of immigrants to interior destinations.

Methods of Developing Passenger Traffic

Although the increased speed, comfort and safety of ocean travel are mainly responsible for the growing volume of the passenger traffic, there are other means of developing travel. The number of persons taking trips abroad is greatly increased by the numerous tourist agencies. The agencies advertise their services widely. They relieve the traveler of the business details of travel, secure him hotel accommodations, furnish him with international banking facilities and supply him with couriers, guides and interpreters in all countries. The educational value of foreign travel is enhanced by "bureaus" that

[1] G. G. Huebner, "Extent of Regulation of Ocean and Inland Water Transportation by the Federal Government," in *The Annals of the American Academy of Political and Social Science*, September, 1914, p. 24.

direct the preparatory reading of tourists and supply them en route with educated conductors who lecture on the art and history of the countries and cities visited. Formerly people traveled abroad from love of adventure, or because of imperative business reasons; now, the chief motives of the ocean cabin passenger are recreation and education. With the increase in the number of people having leisure and a surplus income, with the spread of education among all classes of society, with the ever-growing ease of ocean travel, the greater will be the number of persons that seek to satisfy the travel longing that possesses in greater or less measure the soul of every man.

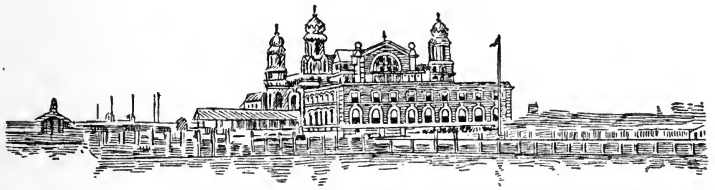
Many passenger lines also conduct advertising campaigns. They distribute circulars and booklets describing foreign points of interest, the educational value of travel, and the business opportunities in the newer foreign countries; and they advertise in the weekly and monthly magazines and daily newspapers. They, moreover, establish agents throughout the interior and at outlying points as well as at the larger ocean ports to give out information and to provide passenger accommodations.

Some of the steamship lines, also American railroads and land companies, have, in times past, solicited immigrants abroad, but this is now prohibited by law. Resident immigrants also increase the volume of passenger traffic through correspondence with their friends, and by providing passage for their families and relatives. The rapid increase in international trade, likewise, results in foreign travel, because an increasing number of salesmen, buyers, engineers and other American business men are being sent abroad.

The Handling of Immigrant Traffic

The steerage traffic is greatly facilitated by the improved methods that have been adopted by the steamship lines and railroads at the port of New York for the through transportation of immigrants to interior destinations in the United States.

Instead of purchasing transportation to the port only, with the consequent danger of being relieved of their savings by hotel and boarding-house keepers or others, as has frequently occurred in the past, immigrants may now purchase through passage to interior destinations. To the steamship ticket which they purchase is attached a steamship order entitling the immigrant to a railroad ticket, which he receives at Ellis Island from agents representing respectively the eastern and western trunk line railroads. If the immigrant inspectors of the United States permit the immigrant to enter, he is transferred to a special train or car which takes him to his destination, at special immigrant fares. These fares which are granted only



Immigrant Station, Ellis Island, New York Harbor

to *bona fide* immigrants are exceptionally low, because immigrants are unable to pay the regular first-class railroad fares. The railroads are able to grant these low fares because their immigrant service is inferior to their first-class service, and because it is efficiently organized. The eastern trunk lines through the Immigrant Clearing House of the Trunk Line Association, and the western trunk lines through a special agent of the Western Passenger Association, divide the total through immigrant traffic among themselves equitably, so that the service provided by each may be effectively utilized.[1]

For handling passenger traffic at the ports, separate arrangements are necessarily provided for cabin and steerage passengers. For sanitary and other reasons, the government inspects steerage passengers more rigidly than those who take

[1] For a detailed account of railroad immigrant services and fares see Johnson and Huebner, *Railroad Traffic and Rates*, II, chapter xxx.

cabin passage, the laws regarding immigrants entering the United States being particularly comprehensive and exacting. On arriving at New York, a passenger steamer stops first in the lower bay and is boarded by the state health officers. If the report of the ship's physician regarding the passengers is satisfactory, and if the inspection of the crew reveals no contagious or infectious disease, the ship proceeds to its company's pier and discharges its cabin passengers and the mails, if it is a mail steamer, after which the immigrants are taken on a tender to the station on Ellis Island, where all steerage passengers must land. Each immigrant is there inspected by officers of the United States Bureau of Immigration. If the immigrant meets all the requirements of the law as regards health and ability to support himself, and is not a criminal, an anarchist, or a laborer imported under contract, and if he can read "the English language or some other language or dialect, including Hebrew or Yiddish," he is allowed to land and proceed to his destination.[1] If the immigrant is denied entry into the United States the steamship company that brought him to our shores must return him without cost to the port from which he sailed. The companies are also required to pay, with certain exemptions, a head tax of $8 for every admitted alien brought to the United States by them.

The ocean passenger traffic through the port of New York exceeds that of any other port of the world; but the arrangements provided for cabin passengers are not so convenient as those to be found in numerous other ports, such as Southampton, England, where one may pass directly from steamer to train, and from train to steamer; or such as Liverpool, where all passenger steamers ship and discharge their passengers at a common "landing stage" centrally located.

Vessels engaged in the passenger traffic are required to issue or carry all of the various ship's papers mentioned on pages 176-184 of the preceding chapter except those which appertain exclusively to freight cargoes; and if passenger ships carry freight as well as passengers, as they usually do, they are

[1] *See* Immigration Act of February, 1917.

Cat. No. 1440
Department of Commerce and Labor
BUREAU OF NAVIGATION
ART. 165, CUSTOMS REGS., 1908, AND ACT FEB. 9, 1905.

LIST OF PASSENGERS

(UNDER "THE PASSENGER ACT, 1882," AND ACT FEB. 9, 1906.)

I, ..., *Master of the* ....., *do solemnly, sincerely, and truly* ..... *that the following List or Manifest, subscribed by me, and now delivered by me to the Collector of Customs of the Port of* ....., *is a full and perfect list of all the passengers taken on board the said vessel at* ....., *from which port said vessel has now arrived; and that on said list is truly designated the name of each passenger, age (if a child of eight years or under), sex, married or single, location of compartment or space occupied during the voyage (if the passenger be other than a cabin passenger), whether a citizen of the United States, number of pieces of baggage, and the name, age, and cause of death of each deceased passenger, as required by the "Passenger Act of 1882," as amended by the Act of February 9, 1905. So help me God.*

Sworn to this ....., *19*
before me.

.....
Collector.

....., *Master.*

List or Manifest *of all passengers taken on board the* .....

whereof ..... *is Master, from* .....

..... *net tons register.*

11—1788

No.	NAMES.	AGE OF CHILD, IF 8 YEARS OR UNDER. Years.	Mths.	SEX.	MARRIED OR SINGLE.	*If passenger, other than cabin passenger, location of compartment or space occupied. (Specify whether for ward, amidship, or aft, and what compartment or space and deck.)	WHETHER CITIZEN OF THE UNITED STATES.	No. OF PIECES OF BAGGAGE.	DATE AND CAUSE OF DEATH.

Form 17.—List of Passengers

also required to have cargo manifests, and the shippers patronizing them are required to issue or obtain the shipping papers described on pages 158 to 176. The distinctively passenger document required of passenger vessels is the so-called *passenger list* which the ship's master must deliver to the collector of the port upon arrival. As is shown in Form 17, this list or manifest states the names and sex of all passengers taken on board, whether they are married or single, whether or not they are citizens of the United States, the number of pieces of baggage of each, the age of children eight years or less of age, the date and cause of any deaths occurring en route and the location of the compartment or space occupied by each steerage passenger during the voyage. A similar document is required by foreign governments when vessels arrive at foreign ports.

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CHAPTER XIV

THE OCEAN MAIL SERVICE

Volume of ocean mail, 199. Cost of transporting foreign mail, 199. Revenues collected in postage, 200. Methods of paying steamship companies, 200. Mail Contract Act, 1891, 200. Mail Contract Act, 1917, 201. Payments for non-contract mail service, 202. Miscellaneous mail transportation expenses and services, 202. International parcels post services, 203. Customs declaration, 206. Domestic parcels post service in foreign trade, 208. Universal Postal Union rates, 208. Special postal rates, 210. Foreign money-order service, 210. Influence of ocean mail service on ocean transportation, 211. References, 212.

DURING the year ending June 30, 1915, 26,241,304 pounds of mail were dispatched from the United States by sea, and it is probable that the weight of incoming mail matter was nearly as much. Over half of the total went to European countries. It is estimated that the number of pieces of mail matter sent and received in the foreign mails (including those carried by rail to and from Canada and Mexico) during the fiscal year 1915 was 581,139,565. The rapidity of the growth of the foreign mail service may be indicated by comparing the figures just given with those for 1890, when the weight of mail matter dispatched oversea was but 4,330,073 pounds, and the total number of pieces in our inbound and outbound foreign mails was 191,413,760.

The total cost of transporting foreign mails from the United States to other countries during 1914 was $3,768,102. The United States paid foreign governments $476,453 for forwarding its mails within their countries, and received from other countries $274,162 for carrying inbound foreign mails across the United States, or to interior points of destination within the country. The actual cost of the foreign mail service, exclusive of the cost of transporting the outbound mail

from interior points to the seaboard post office, was slightly over three and one-half million dollars ($3,565,324) during the fiscal year 1914. The final cost statistics for the fiscal years 1915 and 1916 are not at present available, because of delays in assembling necessary data caused by the war in Europe.

These expenses are more than covered by the postage received. According to the reports of the Postmaster General, the total amount collected in postage on the mails exchanged with all foreign countries was about $11,872,000 in 1914 and $8,863,458 in 1916. The postage collected on articles exchanged with countries other than Canada and Mexico is estimated to have been $8,223,000 in the former and $5,942,241 in the latter year.

Methods of Paying Steamship Companies

The United States pays the steamship companies that carry the ocean mails in one of two ways: (1) by a contract based upon the length of the route and speed of the vessel, and (2) by a payment based upon the amount of postage received by the United States from the mail carried.

The contract service actually in effect at present is based upon the law passed by Congress, March 3, 1891, which empowers the Postmaster General to make contracts running from five to ten years for the carriage of the mails upon steamers of American register, officered by Americans, and manned by a crew at least one half of whom, after the first five years of the contract, must be composed of American citizens.

Steamers are divided into four classes: those in the first class must be iron or steel ships of not less than 8,000 tons gross register, and capable of maintaining at least 20 knots speed; the second class consists of iron or steel steamers of not less than 5,000 tons gross register and 16 knots speed; the third class of iron or steel steamships of at least 2,500 tons and 14 knots; and the fourth class of iron, steel, or

wooden steamers of 1,500 tons or more and 12 knots speed. Steamers of the first, second, and third classes must be so constructed as to be convertible into auxiliary naval cruisers and they may be taken over by the United States for transports or cruisers upon payment of a fair value to the owners. Each vessel of all four classes is required to "take, as cadets or apprentices, one American-born boy under twenty-one years of age for each one thousand tons gross register, and one for each majority fraction thereof, who shall be educated in the duties of seamanship, rank as petty officers, and receive such pay for their services as may be reasonable." Ships of the first class may receive, for carrying the mails, $4 a mile, "by the shortest practicable route, for each outward voyage." Ships of the second class may receive $2 a mile for the outward voyage; ships of the third class, $1 a mile; and of the fourth class, two-thirds of a dollar "for the actual number of miles required by the Post Office Department to be traveled on each outward-bound voyage." The payment does not depend upon the weight of mail carried, but upon distance and speed.

On March 3, 1917, this act was supplemented by a new statute which empowers the Postmaster General in the future to contract with American citizens for transporting mail between the United States and Great Britain in American-built vessels of not less than 35,000 tons gross, and having a speed of not less than 30 knots per hour, at a compensation not exceeding $8 per mile for each outward voyage. At present there are no American vessels of this class.

For some years past from five to seven contracts under the act of 1891 have been in force; and during 1916, when five contracts were in effect, the United States paid $1,096,-918 to the contracting companies. The largest contract is with the American Line of the International Mercantile Marine Company for a weekly service from New York to Southampton, for which the United States paid $665,952 in 1916.[1] For this service ships only of the first class are eligible. The

[1] Excluding fines aggregating $5,300.

second largest contract is with the Oceanic Steamship Company to carry the mails from San Francisco to Sydney, Australia, the compensation for this service in 1916 being $248,512. In this service the vessels are of the second class, for which the payment is $2 a mile. The other contracts cover the transportation of the mails from New York to Cuba, Mexico and Venezuela.

When an American vessel carries the foreign mails of the United States without a special contract its compensation is limited to "the full postage on the mails conveyed, at present at the rate of 80 cents a pound for letters and post cards and 8 cents a pound for other articles."[1] In the case of a steamer transporting the mails under a foreign flag, compensation for the service is allowed at the rate of about 35 cents a pound for letters and post cards and about 4½ cents a pound for other articles calculated on the actual net weight of the mails carried; and these rates of pay also apply to American as well as foreign vessels transporting closed mails of foreign origin.

In addition to the payments made for carrying ocean mails under the two services just explained, the "contract" and "non-contract" services, and those made for carrying the foreign closed mails, there are various other expenses for the transportation of the foreign mails: The Panama Railroad Company received $107,594 in 1916 for carrying mails of United States origin across the Isthmus of Panama. The steamboat transfer services in New York and San Francisco harbors cost $79,100. Sea post offices were maintained on the fast steamers of six ocean lines at a cost of $54,586.[2] Miscellaneous expenses were incurred in connection with the United States postal agencies at Shanghai and Vera Cruz, the maintenance of the International (Postal Union) Bureau at Berne, Switzerland, and the salary of the assistant super-

[1] Postmaster General, *Annual Report,* 1916, p. 137.

[2] Sea post office services on the Hamburg-American and North German Lloyd lines were discontinued at the commencement of the European War.

intendent in charge of the Division of Foreign Mails of the United States Post Office Department.

The sea post offices maintained on numerous steamers between New York and Europe, Porto Rico and the Panama Canal Zone and the transfer service at New York and San Francisco greatly expedite the delivery of the incoming mails, and reduce the amount of sorting to be done at the New York post office. During the trip across the ocean the clerks in charge of the sea post offices sort the mail and sack it with reference to the main distributing centers in the United States. When the ocean steamer reaches the quarantine station in lower New York Bay, it is sometimes met by a special mail steamer of the transfer service, "which receives the mails and conveys them as rapidly as possible to the various wharves, whence the mails for the city of New York are immediately sent to the post office in that city, and those for inland destinations are forwarded by the first outgoing trains." The harbor transfer services both at New York and San Francisco are performed by contractors.

International Parcels-Post Services

The ocean mail service bears a direct and important relationship to the conduct of the foreign trade. The United States Government has entered into parcels-post agreements with fifty-three foreign countries and colonies.[1] The usual

[1] Packages of mailable merchandise may be sent in unsealed packages by parcel post to the following-named countries:

Argentine Republic.*
Australia (including Tasmania).*
Austria, including Durazzo, San Giovanni de Medua, Santi Quaranta, Scutari and Valona, all in Albania (service suspended).*
Bahamas.*
Barbadoes.*
Belgium (service suspended).
Bermuda.
Bolivia.
Brazil.*
British Guiana.*
Chile (packages in excess of five pounds sterling require Chilean Consul invoice).
China* (except Harbin).
Colombia.*
Costa Rica.*

agreement provides for sending through the foreign mails parcels weighing not over 11 pounds, and having a maximum length not exceeding 3 feet 6 inches, and a combined length

Denmark, including Iceland and Faroe Islands* (service suspended).

Dominican Republic.

Dutch Guiana.*

Dutch West Indies (Aruba, Bonaire, Curacao, Saba, St. Eustatius and the Dutch part of St. Martin).*

Ecuador.

France (excluding Algeria and Corsica and the Departments of Aisne, Ardennes, Aube, Haute-Marne, Haute-Saonne, Marne, Muerthe-et-Moselle, Meuse, Nord, Oise, Pas-de-Calais, Seine-et-Marne, Somme and Vosges).*

French Guiana.*

Great Britain.*

Guadeloupe (including Marie Galante, Les Saints, St. Bartholomew and the French portion of St. Martins).*

Guatemala.

Germany (service suspended).*

Gibraltar.*

Greece.*

Haiti.*

Honduras (British).*

Honduras (Republic of).*

Hongkong.

Hungary (service suspended).

Ireland.*

Italy* (including Republic of San Marino, Italian Colonies of Benadir and Erythrea, and the Italian offices at Bengazi (North Africa and Tripoli-in-Barbary).

Japan.*

In Karafuto—Saghalien.

Formosa.

Korea.

Jamaica* (including the Turks, Caicos Islands and Cayman Islands).

Leeward Islands* (Antigua, with Barbuda and Redonda, St. Kitts, Nevis, with Anquilla, Dominica, Montserrat, and the Virgin Islands).

Liberia.*

Martinique.*

Mexico.*

Netherlands (service suspended).*

Newfoundland.*

New Zealand (including Fanning Island),* THE COOK ISLANDS, including Aitutaki, Atin, Hervey (Manuai), Mangaia, Mauke, Mitiaro and Rarotonga; also the Islands of Palmerston (Avarau), Manahik, Penrhyh (Tongreva), Pukapuka (Danger), Rakaanga, Savage (Nide) and Suwarrow.

Nicaragua.

Norway* (service suspended).

Panama (certain offices).*

Peru.

Salvador.*

Sweden* (service suspended).

Trinidad (including Tobago).*

Uruguay.*

Venezuela.*

Windward Islands* (Grenada, St. Vincent, Grenadines, and St. Lucia).

* *Exceptions*

and girth not exceeding 7 feet. The Colombian and Mexican agreements differ from those with other countries in that

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Parcels for Ecuador and Panama may weigh not more than 20 pounds.

Parcels for Colombia and Mexico must not measure more than two (2) feet in length or more than four (4) feet in girth.

Parcels-post packages for Argentine Republic, Barbadoes, Dutch West Indies, Dutch Guiana, France, French Guiana, Gibraltar, Greece, Great Britain, Guadeloupe, Ireland, Martinique, Netherlands and Uruguay cannot be registered.

The parcels-post service to Brazil is strictly limited to the cities of Rio de Janeiro, Sao Paulo, Bello Horizonte, Bahia, Pernambuco (Recife), Para and Curityba. Parcels addressed to other destinations in Brazil can only be delivered if arrangements have been made by the addressee for their transmission from one of the seven abovementioned offices to the office of destination or sent at the sender's risk. Such parcels must be endorsed "Delivery Arranged" or "Sender's Risk."

A parcel when sent as parcels-post must not be posted in a letter-box, but must be taken to the Foreign Section, General Post Office, or any postal station, and presented to the person in charge. Packages for Argentine Republic, Dutch Guiana, France (special form), Dutch West Indies, Gibraltar, Guadeloupe, Martinique, Netherlands, Salvador and Uruguay require two declarations and Venezuela three.

Liquids may be sent by parcels-post, when properly packed, to the following countries and colonies: Argentine Republic, Australia, Austria, Bahamas, Barbadoes, Bolivia, Brazil, British Guiana, British Honduras, China, Costa Rica, Denmark, Dutch Guiana, Dutch West Indies, Ecuador, France, French Guiana, Gibraltar, Great Britain and Ireland, Guadeloupe, Germany, Greece, Haiti, Honduras (Republic of), Hongkong, Italy, Jamaica, Japan, Leeward Islands, Liberia, Mexico, Netherlands, Newfoundland, New Zealand, Norway, Panama, Salvador, Sweden, Trinidad, Uruguay, Venezuela and Windward Islands.

Parcels for Greece addressed for delivery at certain places should be accepted for dispatch only in case the sender indicates exactly, on the address of the parcel as well as on the customs declaration accompanying it, the parcels-post office where the parcel is to be held for delivery. The addressee will be notified, by the receiving office, of the arrival of the parcel, of which he must take delivery in person or cause delivery of the same to be taken by a third party. Accordingly, parcels addressed for delivery at places not included in said list can be transported only as far as the international parcels-post office indicated by the sender.

the parcels mailed to them may not be larger than 2 feet and may not have a girth greater than 4 feet; and the agreements with Ecuador and Panama permit of the mailing of parcels weighing not more than 20 pounds. The postage rate for parcels mailed under these agreements is 12 cents a pound. Parcels mailed to most of the countries named may be registered upon payment of an additional fee of 10 cents.[1]

The foreign parcels-post service is rapidly increasing in popularity, and is one of the main competitors of the international express service for the shipment of small parcels. The parcels dispatched from the United States increased from 138,198 pounds in 1901, the first year for which records were kept, to 560,228 pounds in 1905, and 3,362,780 pounds in 1914.

The weight of the parcels received in the United States declined slightly from 281,813 pounds in 1901 to 232,773 in 1905, but then advanced to 3,081,867 in 1914. The weight of parcels received during the first year of the European War was greatly reduced, but in the fiscal year 1916, 2,720,000 pounds of mail were received through the foreign parcels-post service and 6,269,093 pounds were dispatched.

Since the parcels mailed contain merchandise it is necessary that the shipper fill out the *customs declaration* shown in Form 18, stating the actual contents of packages, value, and other required items. A special customs declaration requiring a statement of the gross weight of the parcel and the net weight of its contents in addition to the usual entries is required when parcels are mailed to France. The usual requirement is that one copy of the declaration be attached to the parcel, but the agreements with various countries [2] call for two copies, and the Venezuelan agreement requires three copies.

[1] See footnote, p. 205.
[2] *Ibid.*

PARCELS POST BETWEEN UNITED STATES AND.....
(4402.)

FORM OF CUSTOMS DECLARATION

To be filled out at the DISPATCHING EXCHANGE Office.

Parcel Bill No.....

No. of Rates Prepaid.....

Entry No.....

(DATE STAMP.)
(Mailing Office.)

DESCRIPTION OF PARCEL. (State whether Box, Packet, Bag, etc.)	CONTENTS	VALUE $	VALUE Cents	*PER CENT.	*TOTAL CUSTOMS CHARGES. $
	TOTAL.....	$			$

Date of Posting....., 190.....

Signature and Address of Sender: .....

.....

*To be filled out at the RECEIVING EXCHANGE office.

Form 18.—Parcels Post Customs Declaration

Domestic Parcels-Post Service in Foreign Trade

Merchandise may be shipped to certain overseas destinations through the domestic parcels-post service. Thus parcels of fourth-class matter weighing more than four ounces and not over 20 pounds may be mailed between the United States and her outlying possessions, including the Panama Canal Zone and American naval vessels stationed abroad, at the eighth-zone rate of 12 cents per pound, except in the case of Porto Rico and the Virgin Islands of the United States, when the rate is 11 cents for the first pound and 10 cents for each additional pound. This domestic parcels-post rate of 12 cents also applies to parcels of merchandise weighing more than 4 ounces and not exceeding 4 pounds 6 ounces (except single volumes of printed books), when mailed to Canada, Mexico, Cuba and the Republic of Panama. Since parcels up to 11 pounds may be sent by foreign parcel post to Mexico and 20 pounds to the Republic of Panama, the shipper has a choice between the domestic parcels post and the foreign parcel-post service. The rate in each case is 12 cents per pound, but the domestic parcels post permits of somewhat larger dimensions, 84 inches in length and girth combined, and may be registered. Parcels mailed to the outlying possessions and the Canal Zone may, upon the payment of the regular domestic fees, be insured for values not exceeding $100, and, with the exception of the Philippine Islands, a C. O. D. service for values not in excess of $100 is offered between money-order post offices.

Universal Postal Union Rates

The development of the international postal service has been aided by the Universal Postal Union that was established by a treaty, called the Universal Postal Convention, concluded at Berne, Switzerland, October 9, 1874. Nearly all the governments in the world are members of this union. It maintains at Berne a central office, called the International Bureau.

This bureau is in charge of a director, and is under the supervision of the Swiss Postal Administration. The expenses of the bureau are borne by the governments that are members of the union.

It is charged with the duty of collecting, collating, publishing, and distributing information of every kind which concerns the international postal service; of giving, at the request of the postal administrations concerned, an opinion upon questions in dispute; of making known propositions for modifying the acts of the Congress (the Universal Postal Congress); of giving notice of the changes adopted; and, in general, of undertaking such researches and labors as may be intrusted to it in the interest of the Postal Union.[1]

The Universal Postal Congress, composed of delegates from the governments belonging to the Universal Postal Union, convenes once in five years. It is the legislative body that controls the policy of the union, and decides upon the rules and regulations to be observed by the members of the union in the management of their foreign-mail service.

Small packages of samples of merchandise weighing not over 12 ounces gross may be mailed to the countries included in the Universal Postal Union at a rate of 2 cents for the first 4 ounces and 1 cent for each additional 2 ounces. These rates are supposed to be limited to *bona fide* samples "of no commercial value."

The Universal Postal Union classification also provides for the mailing of "commercial papers," such as bills of lading, invoices, insurance certificates or policies, legal documents, deeds, etc. Such papers, many of which are essential to the conduct of foreign trade, may be mailed in unsealed packets up to 4 pounds 6 ounces in weight at a rate of 5 cents for the first 10 ounces and 1 cent for each additional 2 ounces.

The Postal Union rates on newspapers and other printed matter are 1 cent per 2 ounces, and the weight, with certain exceptions, is limited to 4 pounds 6 ounces. The general rates

[1] Postmaster General, *Annual Report*, 1904, p. 461.

of postage on letters and post cards applicable, with some exceptions, to countries of the Universal Postal Union, are: on letters, 5 cents for the first ounce and 3 cents for each additional ounce, and on post cards 2 cents each. In case exporters or others desire to prepay postage on return letters, they may purchase "reply-coupons" at 6 cents each, which may be exchanged for postage stamps in a large number of countries.

Special Postal Rates

The postal rates to certain overseas destinations are less than those established through the Universal Postal Union. Thus, the domestic postal rates of the United States, subject to various modifications [1] in the case of mail matter other than letters and post cards, are applicable to Canada, Mexico, Cuba, Tuituila, Porto Rico, Guam, Hawaii, the Philippines, the Panama Canal Zone, Alaska, the Republic of Panama, Shanghai, American naval vessels in foreign waters, and the United States Naval Hospital at Yokohama. The rate on letters mailed to Great Britain and Ireland, Newfoundland, the Bahamas, Barbadoes, British Honduras, British Guiana, the Dutch West Indies, New Zealand, and the Leeward Islands is 2 cents [2] for each ounce instead of 5 and 3 cents, as is provided in the Postal Union classification. Prior to the European War, letters could also be mailed to Germany by direct ocean transportation at a rate of 2 cents an ounce. This rate was suspended because the war made it impossible for vessels to deliver letters directly at a German port.

Foreign Money-Order Service

The post office provides a foreign money-order service. International money orders may be purchased for sums ranging from 1 cent to $100 at fees varying from 10 cents to $1 for foreign countries generally. The domestic fees ranging from

[1] Exceptions can be readily found in circulars issued by the U. S. Post Office Department.

[2] Changed to 3 cents, Nov. 1, 1917, as a war measure.

3 to 30 cents apply in the case of money orders for the outlying possessions of the United States, except Alaska, and for Bermuda, British Guiana, British Honduras, Canada, Cuba, Mexico, Newfoundland, Shanghai, the Bahama Islands, Jamaica and certain other islands in the West Indies. When a larger sum than $100 is to be sent, any number of additional orders may be obtained.

In addition to the direct use of the parcels-post service for shipping merchandise abroad, and the close connection between the foreign trade and the services provided for mailing samples, commercial papers, letters and other mail matter, the ocean-mail service has had a stimulating influence upon the development of ocean transportation generally. As with the passenger traffic, so with the carriage of the mails, speed is necessary, and steamship companies, in order to secure the liberal payments which governments are willing to make for a fast mail service, have steadily sought to reduce the time required for ocean transit. Moreover, in making contracts with steamship companies for the carriage of the foreign mails, most governments include with the transportation of the mails various requirements as to frequency and speed of the service, and sometimes there are requirements regarding the passenger and freight accommodations to be afforded by the mail steamers. For these services intended to aid commerce the governments often remunerate the carrier by liberal payment for carrying the mails. Ship subsidies not infrequently take the form of mail payments; the government requiring the vessels that carry the mail to be of home registry, to be built in domestic shipyards, and officered and manned in whole or in part by citizens of the contracting country.

In the subsequent discussion of government aid to shipping, the policy of the United States and other countries will be considered, and the discussion will show that the payments for the carriage of the ocean mails have been influential in developing the ocean transportation facilities of several countries.

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CHAPTER XV

THE INTERNATIONAL EXPRESS SERVICE

International and domestic express services contrasted, 213. Origin and development of international express service, 214. Description of services performed, 216. Business organization and arrangements, 218. International express documents, 220. Express receipt, 220. Express bill of lading, 220. Export bill of lading, 220. Shipping instructions, 221. Express expense bill, 228. Manifest of articles exported by railway, 228. Packing slip, 228. Express waybill, 229. International express tariffs, 232. References, 234.

THE international express service, omitting that conducted by rail between the United States and Canada and Mexico, differs from the domestic express service in several particulars:

1. At times it results in a somewhat prompter delivery than can be secured by means of the freight service, but most shipments made by express to overseas destinations are carried on the same ocean vessels that transport cargoes for individual shippers. The special promptness of dispatch, when there is any, is due mainly to the expeditious handling of express traffic at the ports, and to the frequent use of passenger trains when small export or import packages are shipped by express between the ports and interior points. While domestic express traffic differs from railroad freight in that it moves on passenger trains from point of origin to destination, international express traffic usually does not have the advantage over ocean freight cargoes so far as transportation at sea is concerned.

2. The distinction between freight and express traffic is somewhat more definite in international traffic than in domestic traffic by rail, where commodities ordinarily shipped as freight may be sent by express whenever their prompt delivery is especially important. Since the international express

service is not a guarantee of promptness in delivery, the nature of its traffic is more largely determined by considerations of convenience, saving in rates and other advantages that will be described later. The small but increasing volume of express traffic consequently consists mainly of parcels of relatively high values as compared with their weight, papers and documents, printed matter too heavy for transmission by mail, paper money and coin, and packages of merchandise of all kinds which are too small for economical shipment in the freight service of such steamship companies as establish a high minimum freight rate and do not issue parcel receipts. At times international express companies or freight forwarding concerns handle bulky shipments because of the convenience to shippers who wish to be relieved of transfer work and trade formalities arising at the ports; but, as was stated in Chapter XI, regular shippers frequently make other arrangements.

3. The international express business also differs from the domestic express business in that it is organized and conducted differently. Special mention will be made of the arrangements between the international express companies and the ocean carriers, of their organization abroad, and of their arrangements with shippers.

Origin and Development

The international express service was begun by Mr. William F. Harnden in 1840, shortly after he had founded the first domestic express line in the United States.

Harnden and Company established agencies in the leading cities of England, France, Scotland, Ireland, and Germany, and not only was a regular express business conducted, but arrangements were made whereby the company could draw bills of exchange either upon its foreign agents or upon foreign banks. The company also became a popular immigrant agency, arrangements being made with a large packet-ship line and with numerous Erie Canal boat lines for the cheap carriage to the West of

many European immigrants who were solicited by passenger agents employed for that purpose.[1]

It is stated that "Harnden and Company underrated the value of their home expresses, so full were their minds of the superior magnitude of their foreign operations. They were receiving and sending to the West scores of shiploads of immigrants, and actually had under their control the bulk of the foreign passenger business."[2] The ambitious operations of this pioneer company were not, however, long maintained. Soon after the death of Mr. Harnden the domestic lines of Harnden and Company were sold, its foreign passenger business abandoned, and the company became a foreign banking and commission concern.

Other domestic express companies continued the foreign express business, but it was soon found that the amount of available traffic was limited. All but four of the regular domestic express companies gradually withdrew from the international express service. Those that remained were the American, United States, Wells Fargo and Company, and Adams, the first three conducting their foreign express services through special foreign departments and the Adams Express Company through a subsidiary concern known as the Morris European and American Express Company. In 1914, moreover, the United States Express Company discontinued both its domestic and foreign services.

The international express service is not, however, confined to the domestic express companies mentioned above. A large number of freight forwarding concerns were gradually organized at the leading ocean ports, and these concerns not only handled ocean cargoes of all kinds at the ports, but conducted an international express service. Indeed, some of them prefer to be known as freight forwarding and foreign express companies.

[1] Johnson, Van Metre, Huebner and Hanchett, *History of the Domestic and Foreign Commerce of the United States*, II, 124.

[2] Stimson, *History of the Express Business*, 44.

The Services Performed

The services performed by the express and freight forwarding companies engaged in the international express business may be summarized as follows:

1. They are in a position to offer reduced rates on small packages because many steamship companies issue so-called minimum bills of lading, that is, they establish a relatively high minimum freight rate ranging from $5 to $10 per bill of lading or equal to the freight rate for one, one and a half, or two tons or other quantity of cargo.[1] The international express concerns by combining the small packages of many shippers may therefore quote rates which result in a saving to the individual shippers and a profit to themselves. The recent issue of parcels receipts by numerous steamship companies, however, has made it more difficult for the express companies to solicit traffic on the plea of reduced rates.

2. The express concerns, especially those that conduct a freight forwarding business, perform the necessary port services for many exporters and importers. They act as the port representatives of interior shippers, attending to the cartage, issue of shipping papers, and any trade formalities which may arise at the ports. When asked to handle import merchandise they may also perform the services of a custom-house broker. Their difficulties as port representatives are increasing because the rail and ocean carriers frequently undertake to perform the necessary port services, many large interior shippers maintain their own agents at the leading ports, other concerns, such as export commission houses or manufacturers' export agents, may at times be induced to perform them, and the custom-house brokers usually see to the entry of imports.

3. International express companies and freight forwarders are a convenience to shippers in that they provide a through service to foreign destinations. Parcels may be turned over to them not only for clearance through the port of shipment, but for final delivery to foreign consignees. In order to make

[1] *See* chap. xii.

this possible they maintain a foreign organization or make arrangements with foreign freight houses.

4. They quote through rates to foreign destinations in connection with their through services.

5. Some of them perform a foreign exchange service, although this is of doubtful value because the drafts negotiated by them are handled through the usual international exchange brokers or bankers whose services are readily available to shippers.

6. They make a specialty of rendering a C. O. D. service, and "are in a position to handle refused goods as business men, to the best interests of the shippers, carrying out the latter's instructions, as a bank frequently cannot do or will not do." [1]

7. When the ocean carriers insist on the prepayment of freight charges, the express or forwarding companies at times arrange with the shippers for their collection at destination. In such cases they prepay the ocean freight charges themselves, and to that extent carry the shipper until their foreign agent or correspondent has collected the charges from the consignee.

8. They offer to provide marine insurance on express shipments, thus relieving the shipper of the necessity of obtaining it from insurance companies or underwriters. The extract from a foreign express tariff, reproduced in Table 10, contains a special column of insurance charges which are added to the express rates in case the shipper desires insurance.

9. Some of the international express companies offer to give trade information to their customers that would be of use to them in ordering or selling goods abroad; and a smaller number agree to make the actual purchase or sale of goods, i. e., to act as foreign buying and selling agents.

10. As was stated before, they sometimes succeed in bringing about a prompter delivery than can be secured by means of the freight service.

[1] B. O. Hough, *Ocean Trade and Traffic*, 277.

11. The three large domestic express companies that conduct a foreign express service also carry on an international banking business to some extent, by selling travelers' checks that can be cashed in any one of a large number of foreign cities. These checks are purchased in increasing numbers by tourists, some persons preferring the checks to the customary letter of credit. They also issue foreign money orders and letters of credit, conduct a "foreign postal remittance" service for the remittance of money to persons not residing near a bank; and they undertake to transfer money by telegraph.

Business Organization and Arrangements

Two of the regular domestic express companies, the American and Wells Fargo and Company, have special foreign departments for the conduct of their international express service while the Adams Express Company, as was stated in a previous connection, conducts it through a special subsidiary company. Their business arrangements abroad differ from those maintained in the United States in that they do not maintain business organizations of their own at most foreign points. The express traffic they have in foreign countries is not large enough to require this. Consequently the three domestic express companies, as well as the numerous freight forwarders engaged in the international express business, depend mainly upon foreign freight forwarders or so-called "spediteurs" in Europe and elsewhere with whom they have entered into reciprocal agreements. The American party to the agreement engages to consign to its foreign agent all express matter which the American company may receive destined to points in the territory covered by the operations of the foreign agent. Likewise, the foreign party to the contract obligates himself to forward to the American company with which he has an agreement all express matter he may receive destined for points in the United States, and not otherwise specifically consigned.

Although most express traffic abroad is handled through

foreign forwarders on the basis of agreements, American express and forwarding concerns at times establish branch offices of their own at a limited number of the principal foreign cities in which they operate. *Bona fide* branch offices are, however, not to be confused with the practice of displaying signboards at the offices of foreign forwarding concerns. In the past, express companies and forwarders were able to make arrangements with some of the governments of European countries to interchange shipments through their parcels-post services. The American Express Company, for example, at one time entered into a parcels-post agreement with the British Government. Packages accepted by the British post office for delivery by parcels post in the United States were consigned to the American Express Company for delivery; likewise the American Express Company employed the parcels post in the United Kingdom to deliver packages consigned to points in that country. Such arrangements, however, were made before the parcels-post services were conducted on a large scale in the United States. The United States Post Office Department has entered into parcels-post agreements with fifty-three foreign countries, and the resulting postal service is a competitor rather than an aid to the international express service.

The international express company makes no special contract with the steamship company for the transportation of express matter, its relations with the ocean carrier being like those of other shippers. In this regard the foreign express service differs from the domestic. In the domestic business, the express company makes a contract with a railroad company whereby the express company is granted a monopoly of the express traffic handled over that railroad. The railroad company furnishes the requisite cars or car space for transporting the express matter, and hauls the cars, and receives for this service from 40 to 60 per cent of the gross receipts obtained by the express company. The express company collects, dispatches, and delivers the packages, employing the railroad, by special contract, to transport the traffic

In the foreign-express traffic, on the contrary, the express company usually makes an agreement with the ocean carrier, as other shippers do, for each separate voyage, to carry such matter as may be offered for that trip at the rates charged by the carrier for the class and quantity of goods offered for shipment. The express company ships its foreign traffic by the steamer and line that may have the first sailing, instead of dispatching its packages by only one line of vessels. The international express traffic being relatively small in volume and more or less intermittent, and the number of sailings of a steamship line being very much smaller than the number of passenger trains dispatched on a railroad, this plan of shipping goods without a special contract is economical and satisfactory. Annual or other time contracts are sometimes entered into by express companies and steamship lines, but this practice is confined largely to the coastwise and Great Lakes traffic, where the number of steamship lines operating between given ports is small and their sailings relatively frequent.

International Express Documents

Since the international express or forwarding concerns deal with the ocean carriers as ordinary shippers, they receive the regular ocean bills of lading from the latter. In their dealings with the shipper, in turn, they issue an express or forwarder's receipt or bill of lading. In the case of a single small shipment the shipper is given a *receipt*, the form of which is the same as for a domestic shipment; but as is shown in Form 19, it contains special provisions applicable to foreign shipments. When the consignment is a large one the shipper receives an *express bill of lading* describing the goods, giving the name of the shipper and the consignee, the destination of the goods, weight and description of the articles, and the rates or amount of agreed through charges. It is similar to the usual ocean bill of lading which they themselves receive from the ocean carriers.[1] Indeed, when the forwarders

[1] *See* chap. xii, form 7.

handle shipments that are sufficiently large to make it unnecessary to combine them with others, the regular ocean bill of lading received from the ocean carriers may be sent to the shipper or, if he so wishes, to the consignee. When through shipments are made by express from interior points of origin the shipper receives an *export* or *through bill of lading* from the express company, this paper likewise being similar to the usual export or through bill of lading issued by the railroads.[1] As in the case of freight shipments, the usual shipper's mani-

(6076. (June, 1917.)

UNIFORM EXPRESS RECEIPT.

AMERICAN EXPRESS COMPANY at _____ Received from _____

Subject to the Classifications and Tariffs in effect on the date accepted, the properties hereinafter described, which the Express Company agrees to carry upon the terms and conditions of its regular form of receipt printed on the back hereof, to which the shipper agrees, and as evidence thereof, accepts and signs this receipt. **NON-NEGOTIABLE RECEIPT.**

DATE		NUMBER AND DESCRIPTION OF PIECES	Value hereby declared by shipper to be		CONSIGNED TO	DESTINATION	CHARGES		FOR THE COMPANY
			Dollars	Cents			Dollars	Cents	

In entering shipments forwarded C. O. D., always use two lines. Employes must sign on both lines—once for the shipment, and once for the C. O. D.

_____ SHIPPER

NOTE.—The Company's charge, except upon ordinary live stock, is dependent upon the value of the property, as declared or released by the shipper. If the shipper desires to release the value to $50 for any shipment of 100 pounds or less, or not exceeding fifty cents per pound, actual weight, for any shipment in excess of 100 pounds, the value may be released by inserting "not exceedng $50," or "not exceeding fifty cents per pound," in which case the company's liability is limited to an amount not exceeding the value so declared or released.

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Form 19.—Express Receipt

fests, shipper's invoices, consular invoices or other shipping papers required of shippers in the foreign trade need to be issued when goods are exported or imported through express or forwarding concerns. Special forms are sometimes provided by the companies, but they are so similar to the forms used in shipping ocean freight that detailed description is unnecessary.

When shipments are consigned from interior points to forwarders at the ports with instructions that they be forwarded to foreign destinations, the forwarder usually supplies the shipper with a special *advice of shipment* or *shipping instruc-*

[1] *See* chap. xii, form 8.

TERMS AND CONDITIONS.

1. The provisions of this receipt shall inure to the benefit of and be binding upon the consignor, the consignee, and all carriers handling this shipment, and shall apply to any reconsignment, or return thereof.

2. In consideration of the rate charged for carrying said property, which is dependent upon the value thereof and is based upon an agreed valuation of not exceeding fifty dollars for any shipment of 100 pounds or less, and not exceeding fifty cents per pound, actual weight, for any shipment in excess of 100 pounds, unless a greater value is declared at the time of shipment, the shipper agrees that the company shall not be liable in any event for more than fifty dollars for any shipment of 100 pounds or less, or for more than fifty cents per pound, actual weight, for any shipment weighing more than 100 pounds, unless a greater value is stated herein. Unless a greater value is declared and stated herein the shipper agrees that the value of the shipment is as last above set out and that the liability of the company shall in no event exceed such value.

3. **Unless caused by its own negligence or that of its agents,** the company shall not be liable for—
   a. Difference in weight or quantity caused by shrinkage, leakage, or evaporation.
   b. The death, injury, or escape of live freight.
   c. Loss of money, bullion, bonds, coupons, jewelry, precious stones, valuable papers, or other matter of extraordinary value, unless such articles are enumerated in the receipt.

4. **Unless caused in whole or in part by its own negligence or that of its agents,** the company shall not be liable for loss, damage, or delay caused by—
   a. The act or default of the shipper or owner.
   b. The nature of the property, or defect or inherent vice therein.
   c. Improper or insufficient packing, securing, or addressing.
   d. The Act of God, public enemies, authority of law, quarantine, riots, strikes, perils of navigation, the hazards or dangers incident to a state of war, or occurrence in customs warehouse.
   e. The examination by, or partial delivery to, the consignee of C. O. D. shipments.
   f. Delivery under instructions of consignor or consignee at stations where there is no agent of the company after such shipments have been left at such stations.

5. Packages containing fragile articles or articles consisting wholly or in part of glass must be so marked and be packed so as to insure safe transportation by express with ordinary care.

6. When property is destined to a point at which no express company has an agency it should be marked with the name of the express station at which delivery will be accepted. If not so marked it will be carried to the express station nearest the destination point and arrival notice given consignee.

7. Except where the loss, damage, or injury complained of is due to delay or damage while being loaded or unloaded, or damaged in transit by carelessness or negligence, as conditions precedent to recovery claims must be made in writing to the originating or delivering carrier within four months after delivery of the property or, in case of failure to make delivery, then within four months after a reasonable time for delivery has elapsed; and suits for loss, damage, or delay shall be instituted only within two years and one day after delivery of the property or, in case of failure to make delivery, then within two years and one day after a reasonable time for delivery has elapsed.

8. If any C. O. D. is not paid within thirty days after notice of non-delivery has been mailed to the shipper the Company may at its option return the property to the consignor.

9. Free delivery will not be made at points where the company maintains no delivery service; at points where delivery service is maintained free delivery will not be made at addresses beyond the established and published delivery limits.

Special Additional Provisions as to Shipments Forwarded from the United States to Places in Foreign Countries.

10. If the destination specified in this receipt is in a foreign country, the property covered hereby shall, as to transit over ocean routes and by their foreign connections to such destination, be subject to all the terms and conditions of the receipts or bills of lading of ocean carriers as accepted by the company for the shipment, and of foreign carriers participating in the transportation, and as to such transit is accepted for transportation and delivery subject to the acts, ladings, laws, regulations, and customs of over-sea and foreign carriers, custodians, and governments, their employees and agents.

11. The company shall not be liable for any loss, damage, or delay to said shipments over ocean routes and their foreign connections, the destination of which is in a foreign country, occurring outside the boundaries of the United States, which may be occasioned by any such acts, ladings, laws, regulations, or customs.

12. It is hereby agreed that the property destined to such foreign countries, and assessable with foreign governmental or customs duties, taxes, or charges, may be stopped in transit at foreign ports, frontiers, or depositories, and there held pending examination, assessments, and payments, and such duties and charges, when advanced by the Company, shall become a lien on the property.

Back of Form 19

tions blank, such as is reproduced in Form 21. This advice contains detailed information in accordance with which the

Express Export Bill of Lading

Wells Fargo & Co Express

General Forwarders to and from all parts of Commercial World

Principal Foreign Department Offices

NEW YORK — LONDON, LIVERPOOL, HAVRE, PARIS, HAMBURG, BREMEN, BERLIN, ANTWERP, ROTTERDAM, AMSTERDAM

CHICAGO — GENOA, ROME

SAN FRANCISCO — HAVANA, MANILA

Agents and Correspondents at Principal Ports Throughout the World

(B/L No._____ Contract No._____)

SHIPPED as per the RECEIPT and, or, BILL OF LADING issued by the initial Carrier, subject to the Classifications and Tariffs in effect on the date of issue of this Original Bill of Lading

at_____ on_____ 191____ **BY** _____ the property described below, in apparent good order, except as noted (contents and conditions of contents of packages unknown), marked, numbered, consigned and destined and to be carried as indicated below

Via Port (A) of NEW YORK_____ and thence by_____

(scheduled to sail_____ sailed_____) or the next available Steamer (or Line) and to be

delivered in like order and condition at the Port (B) of_____ (or so near thereto as steamer may safely get, with liberty to call at any port or ports in or out of the customary route), and to be there delivered in like good order and condition as consigned, or to consignee's assigns, or to another carrier on the route to destination if consigned beyond said Port (B), upon payment immediately on discharge of the property, of the freight thereon, at the agreed rate, United States gold currency, with all other charges and average, without any allowance of credit or discount; settlement to be made on the basis of 4 shillings, 2 pence, 4.25 marks, 5.25 francs, 1.50 Dutch gulders, 3.80 kroner to the dollar, United States gold currency; if in other currency than herein provided for, settlement to be made at the rate of $4.80 to the pound sterling, at the current rate of exchange officially quoted on the day the ocean steamer enters the Custom House at its port of discharge, for which banker's short-sight bills on London can be bought.

CONSIGNED UNTO_____

ARTICLES

MARKS, NUMBERS OR ADDRESS ON GOODS	SUBJECT TO CORRECTION: Gross Weight	Cubic Measurement: FEET	Cubic Measurement: IN	VALUE

APPLY FOR DELIVERY TO_____

The Agent or Correspondent of WELLS FARGO & Co named above will store and through whom final delivery will be made NOTIFY_____

CHARGES

FOR	FROM	TO	@	PER	AMOUNT
CARRIAGE					
CARRIAGE					
MARINE INSURANCE					

It is mutually agreed, as to each carrier of all or any of said property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions, whether printed or written, herein contained, INCLUDING CONDITIONS ON BACK HEREOF, and which are agreed to by the shipper and accepted for himself and his assigns.

It is stipulated that any claim, demand or question, arising out of this shipment and Bill of Lading shall be determined according to the law of the State of New York.

AND FINALLY, in accepting this Bill of Lading, the Shipper, Owner and Consignee of the goods and the holder of the Bill of Lading agree to be bound by all its stipulations, exceptions and conditions, whether written, printed or stamped, as fully as if they were all signed by such Shipper, Owner, Consignee or holder.

IN WITNESS WHEREOF, the Agents of WELLS FARGO & CO. hath affirmed to_____ Bills of Lading, all of this tenor and date, one of which being accomplished the other to stand void.

_____ Agent.

Dated at_____ 191____ Per_____

Form 20.—Express Export Bill of Lading

forwarder then carries out the transaction. It contains the consignee's name and address; the marks and numbers of the packages, their destination, contents, gross and net weights,

ENDORSEMENTS

CONDITIONS

With respect to the service UNTIL DELIVERY at the port (A) of New York,———— ——— it is agreed that:

1. It is agreed that the Company relies upon railroads, steamboats, stage and other lines for transportation, and has no control over the same, and it is agreed that it shall not be liable for any damage to said property from delay to any railroad train, steamboat or other conveyance upon which the same may be carried.

2. The charge for forwarding the said property being based upon a valuation not exceeding Fifty ($50) Dollars for any shipment of one hundred (100) pounds or less, and not exceeding Fifty (50c.) Cents per pound for any shipment in excess of one hundred (100) pounds unless a greater value is declared at time of shipment, it is hereby agreed that the Company shall not be liable in any event for more than Fifty ($50) Dollars upon any shipment of one hundred (100) pounds or less, or for more than Fifty (50c.) Cents per pound on any shipment in excess of one hundred (100) pounds, unless a greater value is declared at time of shipment and additional charge for value paid, or agreed to be paid therefor; and in case of partial loss or damage the Company shall not be liable for more than such proportion of the same as $50, if 100 pounds or less in weight, or 50c. per pound if weight exceeds 100 pounds, or the value declared, bears to the actual value if greater.

If the said property is offered for shipment under the special rates named in Sections "D" and "E" of the existing Official Express Classification, it is agreed that the value of the same does not exceed Ten ($10) Dollars per package, said rates not applying on packages of greater value.

3. If the Company has no office at destination it shall carry said property to its office nearest or most convenient to destination, and there notify the consignee or deliver said property to connecting carrier to complete transportation, and the Company shall not be liable for any loss or damage occurring after giving such notice to the consignee or after delivering to connecting carrier.

4. The Company, unless negligent, shall not be liable for loss of or damage or delay to said property caused by quarantine, customs regulations, strikes, riots, perils of navigation, fire or flood, the act of God, heat, cold, wet or decay; nor for the escape, injury or death of live birds or animals, the Company not being a common carrier thereof, except at owner's risk. Nor shall the Company be liable in any event for any loss of or damage or delay to said property from any cause whatever, unless the same shall be proved to have resulted from the fraud or negligence of the Company or its servants.

5. The said property being packed, secured and addressed by the shipper, it is agreed that the Company shall not be liable for any delay or damage to the same resulting from improper or insufficient packing, securing or marking, nor shall the Company be liable for any damage to fragile articles or articles consisting wholly or in part of, or contained in, glass or chinaware, such shipments being accepted only at owner's risk. The Company shall not be liable for any loss of money, jewelry or valuable papers unless the same are separately packed, sealed and marked as such and so described herein.

6. If any C. O. D. is not paid by the consignee within thirty (30) days of the date hereof, it is agreed that the Company may at its option return said property to the shipper, who shall pay charges for transportation both ways, and the liability of the Company shall be that of warehouseman only, except during actual transportation and twenty-four (24) hours thereafter.

7. In no event shall the Company be liable for any loss, damage or delay unless written claim therefor shall be presented to it within ninety (90) days of the date of such loss, damage or delay, and any suit or suits for or on account of such loss, damage or delay shall be brought within one (1) year from the date hereof or be forfeited, any statute of limitations to the contrary notwithstanding.

It is further agreed that the carrier or party liable on account of loss of or damage to said property shall have the full benefit of any insurance that may have been effected upon or on account of said property.

8. The Company shall not be required to deliver said property at destination except within its present established delivery limits, unless herein otherwise agreed and specially paid for; at points where the Company has no delivery service the consignee shall receive said property at the office of the Company.

9. If said property shall be forwarded upon Ocean Routes it is agreed that the regular bill of lading of any steamship company to whom the same may be delivered shall limit and define the Company's liability with respect to such ocean transportation, unless extra charge has been paid or agreed to be paid for marine insurance and is noted herein by the receiving agent of the Company.

10. All the terms and conditions of this receipt shall apply to any forwarding or return of said property and shall extend to and inure to the benefit of any person, company or corporation to whom the Company may deliver the said property for transportation, storage or delivery.

Form 20 (continued)

With respect to the service AFTER DELIVERY at the port (B) of New York, ——— ——— It is Mutually agreed that:

The ship shall have the liberty to sail with or without pilots; that the Carrier shall have liberty to convey goods in craft and, or lighters to and from the ship at the risk of the owners of the goods; and, in case the ship shall put into a port or refuge, or be prevented from any cause from proceeding in the ordinary course of her voyage, to transship the goods to their destination by any other steamship; that the ship and Carrier shall not be liable for loss or damage occasioned by perils of the sea or other waters, by fire from any cause or wheresoever occurring; by barratry of the master or crew; by enemies, pirates, robbers or thieves; by arrest and restraint of princes, rulers or people, riots, strikes or stoppage of labor, by explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery or appurtenances, or unseaworthiness of the ship, whether existing at time of shipment or at the beginning of voyage, provided the owners have exercised due diligence to make the vessel seaworthy; by heating, frost, decay, putrefaction, rust, sweat, change of character, drainage, leakage, breakage, vermin, or by explosion of any of the goods whether shipped with or without disclosure of their nature, or any loss or damage arising from the nature of the goods, or the insufficiency of packages; nor for land damage, nor for the obliteration, errors, insufficiency or absence of marks, numbers, address or description; nor for risk of craft, hulk or transshipment; nor for any loss or damage caused by the prolongation of the voyage, and, that the Carrier shall not be concluded as to correctness of statements herein of quality, quantity, gauge, contents, weight and value. General Average payable according to York, Antwerp Rules. If the owner of the vessel shall have exercised due diligence to make said vessel in all respects seaworthy and properly manned, equipped and supplied, it is hereby agreed that in case of danger, damage or disaster resulting from fault or negligence of the pilot, master of the crew in the navigation or management of the ship, or from latent or other defects, or unseaworthiness of the vessel, even existing at time of shipment, or at the beginning of the voyage, but not discoverable by due diligence, the consignees or owners of the cargo shall not be exempted from liability for contribution in General Average, or for any special charges incurred, but, with the ship-owner, shall contribute in a General Average, and shall pay such special charges, as if such danger, damage or disaster had not resulted from such fault, negligence, latent or other defects or unseaworthiness.

IT IS ALSO MUTUALLY AGREED that this shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in, the Act of Congress of the United States, approved on the 13th day of February, 1893. An act relating to the navigation of vessels, etc.

I. IT IS ALSO MUTUALLY AGREED that the Carrier shall not be liable for articles specified in Section 4281 of the Revised Statutes of the United States, nor for any package exceeding the sum of $100 in value, unless notice of true character and value thereof is given and same is entered in the bill of lading, and a special agreement is made and extra freight paid. When an insured value appears in this bill of lading it shall not increase the Carrier's limit of liability unless such value is declared as the value of the shipment and extra freight paid thereon.

II. That Shippers shall be liable for any loss or damage to ship or Cargo caused by inflammable, explosive or dangerous goods shipped without full disclosure of their nature, whether such Shipper is Principal or agent, and such goods may be thrown overboard or destroyed at any time without compensation.

III. That the Carrier shall have a lien on the goods for all freights, primages and charges, and also for all fines or damages which the ship or cargo may incur or suffer by reason of the illegal, incorrect or insufficient marking, numbering or addressing of packages or description of their contents.

IV. That in case the Ship shall be prevented from reaching her destination by Quarantine, the Carrier may discharge the goods into any Depot or Lazaretto, and such discharge shall be deemed a final delivery under this contract, and all the expenses thereby incurred on the goods shall be a lien thereon.

V. That the Ship may commence discharging immediately on arrival, and discharge continuously, any custom of the port to the contrary notwithstanding, the Collector of the Port being hereby authorized to grant a general order for discharge immediately on arrival, and if the goods be not taken from the ship by the Consignee directly they come to hand in discharging the ship, the Master or ship's Agent to be at liberty to enter and land the goods, or to put them into craft or store at the owner's risk and expense, when the goods shall be deemed delivered and the ship's responsibility ended, but the ship and Carrier to have a lien on such goods until the payment of all costs and charges so incurred.

VI. That full freight is payable on damaged or unsound goods; but no freight is due on any increase in bulk or weight caused by the absorption of water during the voyage. Furthermore, all charges or expenses incurred through non-compliance with Customs Requirements will be charged to consignee. The shipper hereby further expressly agrees, if the goods are not accepted by consignee, to pay the Carrier all freights, primage, charges and Custom expenditures; and in case such goods are seized or sold, to pay the said Carrier or any and all losses resulting by reason thereof, including all freight and other charges.

VII. That if on a sale of the goods at destination for freight and charges, the proceeds fail to cover said freight and charges, the Carrier shall be entitled to recover the difference from the shipper.

VIII. That in computing the amount of any liability of carrier, ship or representatives as carrier, bailee, or otherwise, hereunder or for or in respect to said property of the care, carriage, delivery or disposition of the same for negligence or otherwise, no higher value

shall be placed upon said property than the market price at the port of destination on the day of the steamer's entry at the Custom House, but in no case shall it be more than the invoice cost thereof at time of original shipping or value herein agreed upon, whichever is less, and in no event shall carrier, ship or representative be liable for any profits or increase in price or value over such cost or agreed value, whichever is less, or any consequential or special damages, and the carrier shall always have the option of replacing any lost or damaged goods. All claims for short delivery, loss, damage, or of whatsoever nature, must be made in writing to the carrier's agent at the port of destination of the goods at time of delivery or in any event within five days after the goods arrive, and in case such claims shall not be presented in writing within the time and place hereinbefore designated, such loss or damage shall be deemed to be waived and the steamer and carrier discharged therefrom. And in no case shall the carrier be liable for any loss or damage arising by reason of theft, such loss or damage being an insurable risk.

IX. That merchandise on wharf awaiting shipment or delivery be at shipper's risk of loss or damage, not happening through the fault or negligence of the owner, master, agent or manager of the vessel, any custom of the port to the contrary notwithstanding.

X. That this bill of lading, duly indorsed, be given up to the Agent of Wells Fargo & Co., in exchange for delivery order.

XI. That the Freight prepaid will not be returned, goods lost or not lost.

XII. That parcels for different Consignees collected or made up in single packages addressed to one Consignee, pay full freight on each parcel.

XIII. That freight payable on weight is to be paid on gross weight landed from Ocean Steamship, unless otherwise agreed to or herein otherwise provided, or unless the Carrier elects to take the freight on the Bill of Lading weight.

XIV. If the cubic measurement of goods upon re-measurement should exceed that given in margin hereof, or error is made in computing charges thereon, the Company reserves the right to correct same by collecting additional charges.

XV. It is stipulated that in case the whole or any part of the articles specified herein be prevented by any cause from going in the first steamship leaving after the arrival of such articles at said port, the Carrier is only bound to forward them by succeeding steamships employed in the same steamship line, or if deemed necessary by said Carrier it may forward them in other steamships.

XVI. That the property covered by this bill of lading is subject to all conditions expressed in the regular forms of bills of lading in use by the steamship company at time of shipment, including any special written or stamped conditions noted thereon by Steamship Company, and to all local rules and regulations at port of destination not expressly provided for by the clauses herein.

XVII. The goods may be baled or coopered if necessary, at expense of owners—costs to follow goods.

XVIII. That the consignee in taking delivery of goods is to see that the marks and numbers agree with those given hereon, and is to carefully examine the condition of packages and if not in good order or packages bear evidences of pilferage of or damage to contents, delivery should only be taken with due reservation.

XIX. Goods which may be required to be forwarded by Rail, Steamer, or otherwise, to their destination, from the Ship's Port of Discharge, shall be so forwarded at Shipper's risk, and carried subject to the ordinary Conditions of Carriage of the Railway, Steam, of other Carrier employed, or subject to any special terms required by them. All liability of the ship and owners and Wells Fargo & Co. under this bill of Lading to cease upon delivery of the goods to the succeeding carrier.

XX. In case the regular steamship service to final port of delivery should for any reason be suspended or interrupted, the carrier at the option of the owner, or consignee of the goods, or the holder of the Bill of Lading, may forward the goods to the nearest available port, this to be considered a final delivery; or to store them at any port at the risk and expense of the goods until regular service to final port of destination is opened again.

XXI. In case of closing of port of destination by ice, right is reserved to unload cargo at nearest accessible port. Any expense incurred for so discharging with cost for carrying to destination will be at risk and expense of consignee.

XXII. MARINE RISKS: Wells Fargo & Co. will not be responsible for losses arising from perils of the sea unless Marine Insurance is arranged for by the Company.

XXIII. With respect to the service after delivery at the port (B) second above mentioned, and until delivery at ultimate destination if destined beyond that port, it is agreed that:

1. In case the regular steamship service to final port of delivery should for any reason be suspended or interrupted, the carrier, at the oprion of the owner or consignee of the goods, or the holder of the bill of lading, may forward the goods to the nearest available port, this to be considered a final delivery; or to store them at the port (B) second above mentioned at the risk and expense of the goods until regular service to final port of destination is opened again.

2. That the property shall be subject exclusively to all the conditions of the carrier or carriers completing the transit; the duty of notification above provided for shall fall exclusively within the obligation of the carrier completing the transit; and no prior carrier shall be responsible for the fulfilment of that obligation.

AND FINALLY, in accepting this bill of lading, the shipper, owner and consignee of the goods, and the holder of the bill of lading, agree to be bound by all its stipulations, exceptions and conditions, whether written or printed, as fully as if they were all signed by such shipper, owner, consignee or holder.

Form 20 (concluded)

measurements and values; the name in which the bill of lading shall be issued; whether the packages are to be insured; to whom the rail, ocean, cartage, forwarding, custom house,

DAVIES, TURNER & CO.

FOREIGN FREIGHT FORWARDERS

BOSTON, 104 HIGH STREET. PHILADELPHIA, 316 WALNUT STREET. NEW YORK, 5 STATE STREET. CHICAGO, 537 S. DEARBORN ST. MONTREAL, P. Q. 119 YOUVILLE SQUARE

City,..... Date,.....

FROM.....

Address.....

To DAVIES, TURNER & CO.

Please ship, following directions hereon.

MARKS	NOS.	DESCRIPTION OF PACKAGES	CONTENTS	WEIGHT GROSS	WEIGHT NET	MEASUREMENT					VALUE

Date of Shipment..... Route (give name of delivering carrier) .....

Consignee .....

Address (give street and number as well as city).....

Destination of goods.....

Make Bills of Lading to order of .....

Mail.....copies of Bills of Lading to .....

Mail consular invoice to .....

Mail insurance certificate to.....

Inland freight to be paid by..... Cartage to steamer to be paid by.....

Foreign freight to be paid by..... Your services to be paid by.....

Effect marine insurance for $..... Policy payable to..... Premium to be paid by .....

Collect for our account (C.O.D.) $..... Charges for collection to be paid by .....

Ship by { Mail Steamer / Cargo Steamer } direct to..... or via.....

REMARKS: .....

ENCLOSURES .....

Naphtha, Carbide, Ammunition, Petroleum, Turpentine, Oil of Vitriol, Unslacked Lime, Matches, Metal Polish, Shoe Polish, and all explosives and highly inflammable goods are accepted for shipment only when special arrangements are made in advance.

We guarantee all charges not prepaid.

(Signature of shipper).....

Address.....

Form 21.—Shipping Instructions

consular and other charges or fees shall be charged; the number of copies of the bills of lading desired, and to whom they shall be mailed. When exported from the interior by

rail the shipper is also required to execute a *manifest of articles exported by railway* (Form No. 22). Having forwarded the shipment as instructed, an *expense bill*, such as is shown in Form 23, is presented for forwarding charges due and also for any expenses, i. e., inland freight, cartage, insurance,

Owner's or Agent's Manifest of Articles Exported by Railway. (Am. Ex. Co. 365. Jan., 1911.)

List or manifest of articles of domestic production or manufacture, and of foreign articles free of duty, or duty paid, delivered by _____ (Name of Owner or Agent.)

to American Express Co. at _____ (Enter above City and State.) *Agent* _____ (Enter above name of Express Agent.)

For Exportation to M _____ (Name of Consignee.)

At _____ (Name of place of intended Destination in Foreign Country.)

via _____ (Name of last port in United States, whence articles pass into the Foreign Country.)

(1) Marks and Numbers of Packages.	(2) Description of Articles.	(3) Domestic Articles.		(4) Foreign Articles Free of duty, or duty paid.	
		Quantities.	Values.	Quantities.	Values.
			Dollars.		*Dollars.*

I, _____ (Name of Owner or Agent.) *hereby certify that the above is a full and true statement of the kinds, quantities and values, and destination of all the articles delivered by me for exportation as aforesaid.*

Residence, _____

_____ [Signature of Owner or Agent.]

Date, _____ *191*__

Any owner or agent may include in a single manifest all articles exported by him on one train.

Form 22.—Manifest of Articles Exported by Railway

consular fees and formalities, and ocean freight, that were incurred.

In order to keep track of each shipment the forwarding or express concern, for its own use, sometimes makes out a *packing slip* in which the various expenses incurred and the details as to packing, bills of lading, waybills, clearances, insurance, etc., are entered. (See Form 24.) For the advice of the foreign agents or correspondents of the forwarding

or express company, a *waybill*, such as is reproduced in Form 25, is issued. It identifies each package of the many which may have been shipped on one ocean bill of lading, states the contents, value and weight of each, the amounts prepaid and to be collected, and other instructions as to what the procedure in each instance shall be.

Shipments may be made through foreign express or for-

FORM E-300 9 12 9

CABLE ADDRESS: EXPEDITION, NEW YORK BOSTON PHILADELPHIA CHICAGO LONDON LIVERPOOL GLASGOW BRISTOL BIRMINGHAM MANCHESTER

Philadelphia, Pa.

M _____ _____ 191__

FOREIGN FREIGHT CONTRACTORS AND FORWARDERS

MARINE INSURANCE
CUSTOMS BROKERS

DAVIES, TURNER & CO.

NEW YORK
OFFICES
39 PEARL ST. & 28 BRIDGE ST.
Tels. 2617-2918-2619-5613 Broad

FREIGHT WAREHOUSE
45 WATER ST

BOSTON
104 HIGH ST
Tels. 5360 and 1314 Main

PHILADELPHIA
316 WALNUT ST
Bell Tel. 27 86a Lombard
Keystone 15-62 Main

CHICAGO
537 So. DEARBORN ST.
Tel. 5282 Harrison

REFERENCE	MARKS	CHARGES ON PER S.S				
		Freight to New York				
		Ocean Freight				
		Marine Insurance				
		War Insurance				
		Cartage				
		Consul Fees				

This Bill payable at the Philadelphia Office

Merchandise, Valuables, Packages and Samples Forwarded To and From all Parts of Europe, etc.

Form 23.—Export Expense Bill

warding concerns either on through express rates or subject to the payment of shipping expenses and forwarder's charges. In the latter case, which is frequently the way the larger shipments are made, the various expenses, such as inland and ocean freight, cartage, insurance, consular fees, etc., are billed, as is shown in the accompanying expense bill (Form 23), either to the shipper or consignee, together with the forwarder's charge for services rendered. In the former case a through express rate is quoted, and this must be sufficiently

PACKING LIST

BELMONT PACKING & RUBBER COMPANY

NAME OF SHIPPER_____

SHIPMENT TO_____

CARE OF_____ AT_____

NUMBER MARKED ON PACKAGE	HOW MANY PACKAGES	KIND OF PACKAGE (BOX BARREL BUNDLE PIECE ETC.)	WEIGHT OF EACH PACKAGE AND OF EACH ITEM				CONTENTS	COMPONENT PARTS OF EACH ARTICLE IN ALL PACKAGES WHETHER COPPER, STEEL, IRON, WOOD OR WHAT	VALUE IN UNITED STATES CURRENCY		ORDER	SIZES OF PACKAGES
			IN POUNDS		IN KILOGRAMS							
			GROSS	NET	GROSS	NET						

Form 24.—Packing List

Form 25.—Export Express Waybill

(851, Apl., 1916.)

American Express Company, Per S. S. _____ 191__ To _____

NEW YORK—No.

OCEAN ROUTING _____

SHIPPER _____

PLACE _____

MARKS AND NOS. ON GOODS	PKGS.—CONTENTS—VALUE	FEET	IN.
		WEIGHT (Lbs.)	

OCEAN CLASSIFICATION _____

OCEAN RATE _____

BILLED FROM _____ TO _____

VIA _____ LINE R. R. EXP. _____ W/B NO. _____ 191__ CAR NO. _____

CONSIGNED ON R. R. B/L TO _____

CONTRACT NO. _____ N. Y. CASHIER'S NO. _____

ARRIVED AT NEW YORK _____ 191__ N. Y. CARTAGE MEMO _____

CONSIGNEE AND DESTINATION

INSURED FOR $

N/B NO _____ CHECKED BY _____

THRO B/L _____ LOT NO. _____

RATE @ _____ PER _____ FROM _____

PORT	W. H.	S. R. STA	PER.

TO _____

DETAILS OF ADVANCES

INLAND FREIGHT.			@				
EXPRESS TO N. Y. VALUATION.							
C. O. D.							
INVOICE PAID BY AM. EX.							
CARTAGE. STORAGE.							
PAID.						COLLECT.	
			ADVANCED.				
			RETURN CHARGES, FOR PAYING INVOICE.				
			INSURANCE.				
			LIGHTERAGE. CARTAGE.				
			OUR CHARGES.				
			VALUATION.				
			HOISTING. EXTRA HANDLING.				
			SHIPPING CHARGE				
			CONSULAR FEES. AND FORMALITIES.				
			TOTAL.				
COMPANY.			CHARGE.			CONSIGNEE.	
			RAILROAD FREIGHT.				
			PORT & LANDING CHARGES				

high to enable the forwarder to pay the shipping expenses incurred and also yield a profit to him. The forwarder's profit in either case may be increased somewhat if the ocean carrier agrees to pay brokerage on ocean freights, but this practice is less general than in the past.

International Express Tariffs

Many international express and forwarding concerns publish detailed tariffs or rate sheets showing their through rates on parcels of different weights. The accompanying rate sheet states rates for different weights from the port of New York to various foreign destinations. As stated in the tariff, in order to obtain the through rate from an interior point it is necessary to add to the tariff rates the inland freight charge to New York. If the shipper wishes to insure the package the marine insurance charges which are stated in the tariff also need to be added; and if the value of the package exceeds $50 an excess valuation charge must be added in accordance with the value rates per $100 stated in the tariff. In case the package exceeds 100 pounds in weight, a specified amount for each additional 20 pounds is added to the rate per 100 pounds.

Foreign express tariffs of this kind are used principally for small packages, and even in such case are not strictly adhered to. The rates contained in them frequently represent merely a maximum charge. This is especially true in the case of heavy shipments. Special rates, depending upon the fluctuations of ocean rates and the character of the articles shipped can usually be obtained for packages of over 100 pounds.

The international express or forwarding concerns are gradually encountering an increasing amount of competition. The international parcels-post service, usually providing for the mailing of 11 pounds, is being rapidly extended throughout the world. Railroads are issuing through bills of lading. Many ocean carriers are issuing parcel receipts to supplement their minimum bills of lading, and are undertaking

EAST BOUND TARIFF.

RATES NAMED BELOW MUST BE CHARGED IN ADDITION TO THE RATE TO NEW YORK, N. Y.

For rates via Pacific ports, see page 11.

[NOTE.—The variations in Foreign rates allow no fixed schedule. To large or regular shippers, all responsible competition will be met.]

ON PARCELS, PACKAGES, BOXES, BALES, ETC.—(For Bulky Goods see Rule on page 6, sec. 12.)

When the value of any Merchandise shipment, including **Jewelry Parcels**, exceeds $50 an additional charge must be made on value, and this charge must be computed upon the total value without allowance or deduction of any kind.

The rates given below are based upon 5 cubic feet to each 100 lbs. or 20 lbs. to each cubic foot. The Company therefore reserves the right to increase its charges proportionately when the cubical measurement of goods exceeds the above basis.

TARIFF FROM NEW YORK TO EUROPE.	lb. 1	lbs. 2	lbs. 3	lbs. 4	lbs. 5	lbs. 7	lbs. 10	lbs. 15	lbs. 20	lbs. 25	lbs. 30	lbs. 35	lbs. 40	lbs. 45	lbs. 50	lbs. 55	lbs. 60	lbs. 65	lbs. 70	lbs. 75	lbs. 80	lbs. 85	lbs. 90	lbs. 95	lbs. 100	Each Additional 20 lbs.	From New York Charge per $100 or fraction thereof Value	Marine Ins.
GREAT BRITAIN, Liverpool	.30	.35	.40	.45	.50	.55	.60	.80	1.00	1.20	1.25	1.40	1.50	1.65	1.75	1.85	1.95	2.00	2.15	2.25	2.30	2.35	2.40	2.45	2.50	.30	.40	.30
London	.40	.45	.50	.55	.60	.70	.75	1.00	1.25	1.50	1.75	2.00	2.25	2.40	2.50	2.55	2.60	2.70	2.75	2.85	3.00	3.20	3.25	3.40	3.50	.40	.50	.35
•All other places in England, Scotland, Ireland and Wales.	.45	.50	.55	.60	.65	.75	.80	1.00	1.25	1.50	1.75	2.00	2.25	2.40	2.50	2.65	2.75	2.80	2.85	3.00	3.10	3.25	3.35	3.50	3.60	.45	.50	.40
FRANCE, Havre	.30	.35	.40	.45	.50	.55	.60	.80	1.00	1.15	1.25	1.40	1.50	1.65	1.75	1.90	2.00	2.15	2.25	2.40	2.50	2.65	2.75	2.90	3.00	.40	.40	.35
Paris—These rates on shipments of 100 lbs. and over apply only to freight (slow) service Havre to Paris—See page 6, sec. 20	.35	.45	.55	.60	.65	.85	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.65	2.75	2.90	3.00	3.15	3.25	3.40	3.50	3.65	3.75	3.90	4.00	.45	.50	.35
•All other places	.55	.60	.75	.90	1.00	1.40	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.65	3.75	3.90	4.00	4.25	4.50	4.65	4.75	4.90	5.00	.50	.50	.40
GERMANY, Hamburg and Bremen	.30	.35	.40	.45	.50	.55	.60	.80	1.00	1.15	1.25	1.40	1.50	1.65	1.75	1.90	2.00	2.10	2.15	2.20	2.30	2.35	2.40	2.45	2.50	.20	.40	.35
Berlin	.45	.50	.55	.65	.70	.85	.95	1.20	1.45	1.70	1.80	2.20	2.40	2.50	2.60	2.80	2.90	3.00	3.15	3.25	3.40	3.55	3.65	3.80	3.90	.35	.50	.40
•All other places	.50	.55	.65	.70	.75	.90	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.65	2.75	2.90	3.00	3.15	3.25	3.40	3.50	3.65	3.75	3.90	4.00	.40	.50	.40
HOLLAND and BELGIUM, Rotterdam and Antwerp	.35	.40	.45	.50	.55	.60	.65	.70	.75	1.00	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	2.00	2.25	2.35	2.40	2.45	2.50	.30	.40	.40
•Amsterdam and all other places.	.40	.50	.55	.60	.65	.75	.90	1.15	1.40	1.60	1.85	1.90	2.15	2.30	2.50	2.60	2.75	2.85	2.95	3.00	3.15	3.25	3.30	3.45	3.50	.40	.50	.50
SWITZERLAND, Basle	.55	.60	.70	.80	.85	1.05	1.20	1.45	1.70	1.95	2.20	2.45	2.70	2.95	3.20	3.45	3.70	3.85	3.95	4.15	4.30	4.45	4.60	4.80	5.00	.45	.60	.45
•All other places	.60	.65	.75	.85	.90	1.10	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	3.90	4.00	4.20	4.35	4.50	4.65	4.85	5.00	.50	.75	.50
AUSTRIA-HUNGARY, Vienna and Budapest	.60	.75	.85	.95	1.00	1.25	1.50	1.75	2.00	2.15	2.25	2.40	2.50	2.65	2.75	2.90	3.00	3.15	3.25	3.40	3.50	3.65	3.75	3.90	4.00	.50	.75	.45
•All other places	.70	.75	1.00	1.15	1.25	1.40	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.15	5.25	5.40	5.50	.55	.75	.50
● **GREECE, principal cities**	1.25	1.30	1.55	1.80	2.00	2.30	2.55	3.30	3.80	4.00	4.20	4.50	4.75	5.00	5.25	5.40	5.50	5.75	6.00	6.25	6.40	6.50	6.75	6.85	7.00	.60	1.75	.75
● **MEDITERRANEAN ISLANDS, principal cities**	1.75	2.00	2.25	2.40	2.50	2.75	3.00	3.50	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.15	6.25	6.40	6.50	6.60	6.75	7.00	7.25	.65	2.00	1.00

●All charges must be prepaid to countries and ports marked thus ●. Seo also page 5, sec. 6. ‡Consular Invoices required—see page 4.
• The designation "All places" or "All other places" only refers to places on a railroad or those reached by direct steamer connection.
‡‡GREECE—Parcel traffic for Greece receive and receipt for only at owner's risk, and in addition to prepayment of charges, get a deposit or guarantee of duty and foreign customs clearance and delivery expenses, in amount equal to the invoice value of the goods.

(Continued.)

the forwarding of freight through the ports for inland shippers. Large shippers are establishing agencies or branch offices at the larger ports; export commission houses and other buying and selling agencies sometimes agree to perform the necessary port services; insurance brokers are readily available to insure foreign shipments, and customs brokers to see to the entry of imports at the custom house. The international express companies and forwarders, however, as has been stated above, perform many services that are a special convenience to the shippers of small parcels and to shippers located in the interior of the country.

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CHAPTER XVI

MARINE INSURANCE

Marine insurance essential to commerce, 235. Liability of rail carriers, 236. Limited liability of ocean carriers, 237. Plans of marine insurance, 239. Lloyd's Association of Underwriters, 239. Lloyd's publications, 240. Society of Lloyd's Register, 241. Other classification societies, 241. Insurance companies, 241. Self-insurance plans, 242. Government marine insurance, 243. Development of marine insurance in the United States, 243. Risks insured in the United States by American and foreign companies, 245. Insurable risks and perils, 246. Marine losses or kinds of liabilities, 247. Marine insurance policies, 247. Essential features of policies, 249. Warranties and representations, 249. Supplementary clauses, 250. Types of policies, 250. Typical vessel policy, 251. Typical cargo policy, 251. Typical war risk policy, 251. Lloyd's policy, 251. Marine insurance certificates, 258. References, 259.

Ocean transportation and the business of international commerce could not have reached their present high state of development without the aid of marine insurance, whereby the risks of losses at sea are taken from the individual owner of property afloat and distributed among numerous individuals or corporations. Unless men were able to minimize the risks of losing their property, they would hesitate to invest capital in ships; unless the merchant was able to insure his cargoes, he would not be able to engage extensively in international trade. Without marine insurance to relieve the merchant of risks, he would be obliged to limit trade to commodities upon which he could make large profits; but with the protection afforded by insurance, he can do business upon a narrow margin, and handle the great staples of present commerce as well as the luxuries which formerly characterized international exchanges. Insurance has enabled goods to be sold at lower

prices than they could otherwise have been sold, and has thus helped to make possible the great development that has taken place in the world's maritime commerce.

The world's commerce is organized on the basis of an extensive system of international credits. Unless the elements of risk had been eliminated from the business of international trade the present extensive use of credit would be impossible. The marine insurance policy or certificate always accompanies the bill of lading, and is as essential a factor of commercial credit as is the bill of lading. Marine insurance is an essential feature both of the ocean transportation service and of the business of international trade.

Marine insurance covers the risks of loss of ship, cargo and freight charges. The close dependence of vessel owners upon marine insurance is obvious; they need protection against the loss of their vessels and of freights that have not been prepaid. Shippers and consignees are equally dependent upon marine insurance because they can seldom hold shipowners liable for the loss of their cargoes. They may, in addition, wish to insure prepaid or collectible freight, because ocean bills of lading generally specify that "freight prepaid will not be returned, goods lost or not lost," and that "full freight is payable on damaged or unsound goods"; and they may desire to insure their profits or any other insurable interest.

Limited Liability of Ocean Carriers

When shipping by rail it is seldom necessary for shippers to insure, because the rail carriers are by law and the terms of their bills of lading ordinarily liable for freight losses or damages. Railroads are exempted from liability only in exceptional instances, such as loss or damage or unreasonable delay due to the "act of God, the public enemy, quarantine, the authority of law," and events such as strikes or riots; the act or default of the shipper, owner or other person entitled to make requests upon carriers; inherent defects in freight shipped; defects in weight of grain or other commodities

caused by natural shrinkage or discrepancies in elevator weights; "deviation or unavoidable delay" due to the compression of cotton bales; and in case freight is shipped on open cars at the request of the shipper the carriers' liability is limited to fire loss or other loss due to the carriers' negligence. Rail carriers, therefore, are liable in case of all the ordinary risks to which railroad freight is exposed. The question of loss or liability in the case of some articles is at times limited to fixed maximum amounts, but in such cases the shipper may, if he desires, obtain full protection by paying increased freight rates.[1]

The liability of carriers by water, on the contrary, is limited greatly both by law and by the contractual provisions of their bills of lading. The statute governing their liability in case of freight shipments from American ports is the Harter Act of February 13, 1893. It specifically provides that carriers by water are liable only under certain conditions, i. e., (1) "negligence, fault or failure in proper loading, stowage, custody, care or proper delivery"; (2) failure "to exercise due diligence, properly equip, man, provision and outfit" their vessels; (3) failure to exercise reasonable care in making a vessel "seaworthy and capable of performing her intended voyage." The contracts in ocean bills of lading are not uniform, but all of them specifically exempt the carriers by water from liability for losses caused by the principal risks encountered in ocean navigation. The following liability clauses from the bill of lading issued by the American Line are typical:

IT IS MUTUALLY AGREED that the steamer shall have liberty to sail with or without pilots; that the carrier shall have liberty to convey goods in craft or lighters to and from the steamer at the risk of the owners of the goods; and, in case the steamer shall put into a port of refuge, or be prevented from any cause from proceeding in the ordinary course of her voyage, to transship the goods to their destination by any other steamer; that the carrier shall not be liable for loss or damage occasioned by fire from any cause or wheresoever occurring; by barratry of

[1] Amendment to the Cummins Amendment, approved August 9, 1916.

the master or crew; by enemies, pirates or robbers; by arrest or restraint of princes, rulers of people, riots, strikes, or stoppage of labor; by explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery or appurtenances, or unseaworthiness of the steamer, whether existing at time of shipment, or at the beginning of the voyage, provided the owners have exercised due diligence to make the steamer seaworthy; by heating, frost, decay, putrefaction, rust, sweat, change of character, drainage, leakage, breakage, vermin, or by explosion of any of the goods whether shipped with or without disclosure of their nature, or any loss or damage arising from the nature of the goods or the insufficiency of packages, nor for inland damage; nor for the obliteration, errors, insufficiency or absence of marks, numbers, address or description; nor for risk of craft, hulk or transshipment; nor for any loss or damage caused by the prolongation of the voyage, and that the carrier shall not be concluded as to correctness of statements herein of quality, quantity, gauge, contents, weight and value. General Average payable according to York-Antwerp Rules. If the owner of the steamer shall have exercised due diligence to make said steamer in all respects seaworthy and properly manned, equipped and supplied, it is hereby agreed that in case of danger, damage or disaster resulting from fault or negligence of the pilot, master or crew in the navigation or management of the steamer, or from latent or other defects, or unseaworthiness of the steamer, whether existing at time of shipment, or at the beginning of the voyage, but not discoverable by due diligence, the consignees or owners of the cargo shall not be exempted from liability for contribution in General Average, or for any special charges incurred, but, with the shipowner, shall contribute in General Average, and shall pay such special charges, as if such danger, damage or disaster had not resulted from such fault, negligence, latent or other defects or unseaworthiness.

IT IS ALSO MUTUALLY AGREED that this shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in, the Act of Congress of the United States, approved on the 13th day of February, 1893, and entitled "An Act relating to the navigation of vessels, etc."

IT IS ALSO MUTUALLY AGREED that the value of each package receipted for as above does not exceed the sum of one

hundred dollars unless otherwise stated herein, on which basis the rate of freight is adjusted.

Plans of Marine Insurance

The marine insurance business as conducted at present is said to have originated in Italy among the Lombard merchants about 1200 A.D. Previous to that time persons having money to invest made loans to vessel and cargo owners upon condition that the money, together with liberal interest, would be returned at the end of the ship's voyage. If the vessel and cargo were lost the loan was not repaid. These transactions were known as "loans on bottomry," and differed radically from present-day marine insurance, which consists of the payment in advance of a premium by the owners of a ship or cargo in return for a guarantee, on the part of the insurer, of the payment of all or a portion of a stipulated sum of money in case of the total or partial loss of the property vested in the ship or cargo.

At present there are four principal sources or plans of marine insurance: (1) insurance underwriting associations, such as the Corporation of Lloyd's, (2) marine insurance companies, (3) self-insurance plans, and (4) government marine insurance plans.

The plan of marine insurance underwriters is best illustrated in the Corporation of Lloyd's, or Lloyd's Association of Underwriters, as it is commonly called. Although similar organizations have been organized elsewhere, none has attained the dominant position in marine insurance enjoyed by Lloyd's. Lloyd's had its origin in the middle of the seventeenth century in a London coffee house conducted by Edward Lloyd. Lloyd developed an extensive system of home and foreign correspondence by which he was kept informed concerning the movements and conditions of vessels engaged in ocean commerce in various parts of the world. In consequence, his coffee house became the meeting-place for underwriters, shipowners and overseas shippers. Until about 1691 Lloyd's was located

in Tower Street, London; then it was removed to Lombard Street; later, as the amount of underwriting increased in volume, the underwriters formed themselves into an association, and in 1774 it occupied the Royal Exchange of London, where it has since been the chief center of the business of marine insurance throughout the world. In 1871 it was incorporated as the Corporation of Lloyd's.

Lloyd's is composed of a group of underwriters each conducting a marine insurance business in an independent capacity. The association does not undertake any marine underwriting as a corporation; it is a great insurance exchange. Each member has a desk allotted to him, there being between 350 and 400 desks in the Royal Exchange at London. Any insurance broker desiring to place a risk goes past the desks of the individual underwriters and places before them a "slip" or statement of the essential particulars, and each underwriter who accepts indicates on the slip the amount he is willing to underwrite and his initials. A score or more of the underwriters may accept for specified amounts, but each accepts for himself only. The broker next presents to the underwriters a so-called "long slip," which contains the detailed information needed to issue the marine insurance policy. Each underwriter who accepted signs the policy when it is made out, and the policy indicates the exact amount for which each is individually responsible. A central office has recently been established to facilitate the issuing of Lloyd's policies.

Lloyd's Corporation not only acts as an insurance exchange but also collects the shipping news that is essential to intelligent underwriting. It has agents at the principal ports of the world from whom it receives maritime news by cable. Such news is then distributed to Lloyd's underwriters, to such insurance companies as carry subscriptions, and in part to the daily press. The shipping publications of Lloyd's Association are as follows:

1. *Lloyd's List,*[1] which is its official daily publication and contains all the shipping news as it is currently received.

[1] Publication suspended during the European War.

2. *The Index*,[1] in which all information concerning particular vessels is posted so that underwriters or subscribers interested in a given vessel may readily find detailed information concerning it.

3. *Register of Captains,* which is a biographical dictionary giving an account of the record of the service and qualifications or the certified masters of British ships.

4. *Record of Losses,* or "black book."

In the past, Lloyd's Association also published the large volume known as *Lloyd's Register of British and Foreign Shipping*, but this is at present issued by a separate organization known as the Society of Lloyd's Register. The general committee of this classification society represents not only the Corporation of Lloyd's but various underwriter and shipowners' associations and chambers of commerce. The classification society should be sharply distinguished from Lloyd's Association of Underwriters. It classifies vessels from the standpoint of marine insurance and issues a large annual volume commonly known as *Lloyd's Register;* it issues vessel construction rules; it supervises or inspects shipbuilding; it fixes the official load line of British vessels.

Although the Society of Lloyd's Register is the principal classification society, a society known as the British Corporation for the Survey and Register of Shipping is a rival; so also is the Bureau Veritas of France; the American Bureau of Shipping, the United States Steamship Owners', Builders' and Underwriters' Association, and the Inland Lloyd's of the United States; the Germanischer Lloyd and the Stettiner Register in Germany; the Veritas Austro-Ungarico in Austria-Hungary; the Nederlandische Werienigung in Holland; the Norske Veritas in Norway; the Registro Nazionale Italiano in Italy; and the Veritas Hellene in Greece; and plans have recently been made for the organization of a classification society in Japan.

Many insurance risks are insured by regularly incorporated insurance companies. The company plan of insurance is par-

[1] Publication suspended during the European War.

ticularly important in the United States, and even in Great Britain, where the underwriting plan has reached its broadest scope, many marine insurance companies conduct a large volume of business. Marine insurance companies became a factor early in the eighteenth century, but it was during the nineteenth century that many large companies were organized in London, Glasgow and Liverpool. The British companies pay annual subscriptions to Lloyd's Association so as to obtain access to the information filed in the underwriting "room" of Lloyd's, and also to obtain copies of the cable messages received by Lloyd's, but they conduct a separate insurance business. They insure marine risks as companies and not as individual underwriters. Similar insurance companies have been organized throughout the maritime world.

Although marine insurance by means of the underwriting company is of particular importance, there has been a tendency on the part of steamship companies, in recent years, to establish self-insurance plans for the insurance of vessel property, and some have taken the additional step of insuring passengers' baggage, effects and cargoes. Some companies have limited self-insurance plans largely to insuring against special risks not included in the policies that they obtain from underwriters or insurance companies. Much of the larger part of the marine insurance provided by the self-insurance funds of individual navigation companies is confined to the insurance of vessel property.

There has also been a tendency, particularly in Great Britain, for vessel owners to provide themselves with marine insurance through mutual shipowner's associations or clubs. Such associations usually maintain committees, which at stated times or when necessary ascertain the payments that have been made and then make levies or assessments in accordance with the insured tonnage of the various members. As is the case with the various independent navigation companies having self-insurance funds, some shipowners insure entirely through these mutual associations or clubs, while others enter them only to obtain protection against such perils as war risks.

War risks as distinguished from marine perils may be insured through any one of the insurance plans mentioned above, but because of the unusual losses that may result from them, governments, belligerent or neutral, at times make provision for national insurance or indemnity. The Bureau of War Risk Insurance of the United States Treasury Department was created by the act of September 2, 1914, and continued under the act of August 11, 1916, for the purpose of insuring the war risks of vessels, cargoes and freight moving under the flag of the United States. The bureau reported that up to June 14, 1917, war risk policies carrying an aggregate insurance of $375,000,000 had been issued since its establishment. The known net losses on that date amounted to $6,500,000. The premiums on this insurance, of which $145,000,000 was still at risk, were approximately $12,900,000.

Various foreign countries, including those of Great Britain, France, Australia and Japan, have also established special plans for the insurance of war risks.

Development of Marine Insurance in the United States

In the United States marine underwriting was formerly a very prosperous business, but with the decline of American deep-sea tonnage during and since the Civil War the amount of marine insurance written by domestic insurance concerns has fallen off. American marine insurance methods have differed from those followed by the underwriters connected with Lloyd's Association, the business in this country being conducted mainly by corporations. The Lloyd system, although tried in the United States, has never flourished in this country.

The history of marine insurance in the United States shows how closely its success or decline is bound up with the prosperity and vicissitudes of the oversea merchant marine. Three distinct periods in the history of marine insurance in the United States are distinguishable:

1. Until 1794, such marine insurance as was written in

America was carried by individuals or partnerships, and not by corporations. The first insurance office opened by any individual in the American colonies seems to have been started in Philadelphia in 1721. The first office in New York was opened in 1759. The business done in Philadelphia, New York and Boston, however, but partly supplied the demand for marine insurance in America. Most persons desiring to secure insurance were obliged to apply to the London underwriters.

2. The second period in the history of marine insurance in the United States began in 1794, at which time the General Assembly of Pennsylvania gave a charter to the Insurance Company of North America, a company that had been carrying on business without incorporation for two years. The example set by Pennsylvania in chartering this company led to the incorporation of numerous companies in Pennsylvania and other states. The fifteen years from 1790 to 1805 were years of prosperity for the American merchant marine, and its development was accompanied by a rapid increase in the number of insurance companies. Thirty-two such companies were incorporated prior to 1800. These early years of prosperity were unfortunately followed by several years of heavy losses resulting from the destruction of American vessels during the years from 1807 to 1815, when the Napoleonic wars in Europe and the War of 1812 in the United States almost paralyzed the international carrying trade of American vessels.

With the restoration of peace in 1815, the American marine revived, but the insurance business was not immediately restored to prosperity, because of the unrestrained rivalry of the numerous companies engaged in underwriting. There was not enough business to enable the many insurance companies to prosper; indeed, it was not until 1840 that marine insurance business in the United States again began to flourish. Then followed twenty years of such rapid increase in marine insurance that the two decades preceding the great Civil War constitute the golden age of marine insurance in the United States.

3. With the Civil War began the third period in the history

of marine insurance in the United States—a period of steady and disheartening decline. The four years of the Civil War were a heavier strain than most insurance companies could bear; only the strong ones were able to survive the period of that conflict. Had the merchant marine engaged under the American flag in foreign commerce been prosperous after the Civil War, the marine insurance business would probably have flourished in the United States; but the tonnage of American oversea shipping has dwindled to small proportions, and with its decline the business of marine underwriting in the United States has fallen off.

In addition to the causes just mentioned for the decline of marine insurance in the United States, there are two others that should be noted. (1) After the introduction of iron vessels on an extensive scale about the middle of the nineteenth century, Lloyd's Association gave iron vessels a higher rating than wooden ones. The effect of this was a discrimination in favor of British shipping, because of the fact that most of the iron vessels of the world were under the British flag. American shipping, until recently, has consisted mainly of wooden vessels. Lloyd's higher rating for iron vessels may have been justified, but it has had an adverse effect upon the growth of marine insurance in the United States, and upon the development of American shipping. (2) Foreign underwriters, prosperous at home, have competed against American underwriters with success for the business of insuring American shipping and commerce. In 1871 there was only one foreign company doing marine underwriting in New York; three years later the number of foreign companies had increased to seven, and in 1914, thirty-two foreign companies were conducting a marine insurance business in New York. The principal foreign marine insurance companies doing business in the United States include British, German,[1] Russian and Swiss companies, and, especially on the Pacific coast, various Australian, Chinese and Japanese companies.

[1] Under executive proclamation of July 14, 1917, German insurance concerns were excluded from war risk business in the United States.

Such marine insurance in the United States as is not provided by foreign insurance companies and underwriters is handled principally by nine[1] American companies. Most of the latter are engaged primarily in the insurance of fire risks, and only two of them conduct an exclusively marine insurance business. Twenty-two additional American companies insured marine risks in New York in 1914, but their marine business was not large, and all but two of them were interested principally in fire insurance.[2] A limited amount of marine insurance business is also written by American underwriting concerns and by navigation companies themselves through self-insurance plans; and war risks by the United States Government Bureau of War Risk Insurance. Marine insurance in the United States has ceased to be prosperous, and most American companies are able to engage extensively in marine underwriting only by combining that business with fire insurance risks. Although the tonnage of American shipping engaged in the coastwise trade of the United States has steadily increased with the growth of commerce, American marine underwriters and companies have not been able to hold their own in competition with the British and German companies, whose business rests upon the safe foundation of a rapidly increasing national marine engaged in the foreign trade.

Insurable Risks and Perils

The risks or perils against which shippers and vessel owners take out marine insurance in accordance with one or another of the various plans mentioned above may be classified as follows:

[1] The Insurance Company of North America, Providence-Washington Company, St. Paul Fire & Marine Company, Boston Insurance Company, Federal Insurance Company of Jersey City, Atlantic Mutual Insurance Company, Firemen's Fund, Aetna, and the Home Insurance Company.

[2] For list of American and foreign companies engaged in marine insurance in New York see *Annual Report of the Superintendent of Insurance of New York*, 1914, pp. lvii-lxv.

1. Losses may be occasioned by the so-called "perils of the sea," which include all losses caused by storms, fogs or lightning; casualties caused by icebergs, derelicts or other marine obstructions; stranding; foundering; collision with other vessels or with marine structures; and any other unavoidable damage to property resulting from the elements. Ordinary wear and tear, however, is not included among perils of the sea, nor do they include inherent defects of the insured properties or events which are inherent in deep-sea navigation. Collisions between vessels are covered by marine insurance, both because of losses sustained by vessel owners in connection with their own craft, and because they may be at fault, and thus be held liable for damages done to other vessels.

2. Fire risks are ordinarily covered by marine insurance policies.

3. Jettison, or the throwing overboard part of a cargo or casting away the masts, spars, rigging or fittings of vessels for the purpose of lightening or relieving the ship, in case of storm or accident, for the common good.

4. Barratry, which includes all forms of fraud and knavery on the part of the vessel's master or crew, such as wilful scuttling or abandonment of vessels or theft of the cargoes.

5. Losses to ship and cargo caused by enemies, pirates, or men-of-war, now ordinarily referred to as "war risks."

Policies sometimes contain a clause covering "all other perils, losses and misfortunes that have or should come to the hurt, detriment or damage of the vessel or cargo," but this clause as legally interpreted includes only such risks or perils as are similar to those specifically stated in the policy contract.

Marine Losses or Kinds of Liability

The kinds of losses or liability resulting from the risks or perils mentioned above and against which vessel owners and shippers seek protection through marine insurance may be conveniently subdivided as follows:

1. The protection afforded may be against a "total loss" of

vessel, cargo, freight, profits or other insurable interest. When the property insured is totally destroyed or is so damaged as to be of no practical value to the insured, the loss is known as an "actual total loss." Sometimes it occurs, however, that the property insured, although slightly damaged, is so placed as to be of no further value to the insured. A vessel may be but slightly damaged and yet it may be necessary to abandon the ship, in which case the insured will give notice of abandonment and his contract would enable him to obtain the full amount of insurance; his loss would be a "constructive total loss."

2. Instead of paying a total loss, the loss resulting from any of the perils mentioned above may be a partial loss. Such a loss may be settled either in accordance with "general average" or "particular average" rules. The maritime laws of nations ordinarily provide that any loss resulting from a voluntary or deliberate sacrifice of vessel, cargo, or other property for the common safety and welfare should not be borne entirely by the particular owners of the sacrificed properties, but should be fairly prorated among all interests that benefited by such sacrifice. This rule is known as general average, and the losses resulting from it are usually included in marine insurance policies.

3. A partial loss may also be settled in accordance with the "particular average" rule, i. e., when the property insured is damaged by accident or is not destroyed by the master of the vessel for the purpose of saving other property, the loss must be borne entirely by the owners of the damaged property or by its insurers. Marine insurance policies usually cover such losses only in part, no payments being required unless a particular average loss exceeds an agreed percentage of the value of the insured property. Full insurance against such loss may, however, be obtained upon payment of premiums sufficient to cover the additional risk assumed.

4. A partial loss or liability may result from the payment of salvage, which is the reward granted by law to those who save life and property at sea. If a vessel in distress receives

assistance from another vessel and is towed to port, the vessel giving assistance may claim salvage, and the amount legally due is payable by the owner or by the insurer of the vessel and cargo to which assistance was given.

Marine Insurance Policies

In his work on *Marine Insurance,* Mr. William Gow summarizes the essential features of a marine insurance policy, by stating that the policy must (1) contain a contract of indemnity; (2) be made in good faith; (3) refer to a stipulated proportion of the property affected by the insurance; (4) must indicate that the insured has a genuine interest in the property covered by the contract; (5) that the insurance is against contingencies, definitely stated in the contract, to which the property insured is exposed; and (6) that the insurance is afforded in return for a definite payment on the part of the insured.

Policies are sometimes issued when the insurer does not possess a "genuine interest" in the property covered by the contract, but such policies are not legally enforceable and depend upon the honor or good faith of the parties concerned. They are variously known as "wager," "honor," or "P.P.I." policies, the latter term meaning that the policy will be accepted as "proof of interest."

The validity of a policy depends upon compliance with the special agreements which it contains. These may take the form of written warranties or representations. The former are explicit agreements, such as those which prohibit an insured vessel from navigating a particular route or from carrying prohibited commodities. Representations differ from warranties chiefly in that they are less formal and severe, and "equitable and substantial fulfilment" is sufficient to insure the validity of the policy.

A policy also carries with it certain "implied" warranties not definitely incorporated in the policy contract, but nevertheless generally acknowledged. They are (1) that the vessel must be seaworthy for the intended voyage at the time of

clearance; (2) that it shall proceed between the ports of clearance and entry in the usual way without deviation or unnecessary delays; and (3) that the voyage undertaken shall be legal in all particulars.

Many supplementary clauses are at times inserted in the marine insurance policies when desired or when necessary to meet special conditions. Some of them are generally found in American policy contracts, while others are inserted only on special occasions. Among such supplementary clauses are the assignment, the subrogation, the reinsurance, the particular average, the "lost or not lost," the "sue and labor," and the collision clauses. The assignment clause permits one person to effect insurance for another, and provides that an insured interest may legally change hands. The subrogation clause entitles the insured to all the rights of the insurer and to all remedies that the latter could have exercised in respect to a loss. The reinsurance clause authorizes insurers to guard against heavy losses through reinsurance. In specially inserted particular average clauses the amount collectible, in case of such losses, may be limited to an amount not exceeding an agreed percentage of the insured property's value. Particular average losses may, moreover, be excluded entirely or they may be made contingent upon agreed risks or perils. The lost or not lost clause provides that the underwriter is liable regardless of the conditions of the insured property at the time when the insurance is effected. The sue and labor, and waiver clauses govern the action taken and the expense incurred in whatever efforts are made to prevent or reduce marine losses. Many additional miscellaneous clauses may be endorsed on a marine insurance policy so as to adapt it to whatever special conditions may arise to protect the interest of the underwriter or to accomplish some particular purpose.

The kinds of property covered by marine insurance policies are very numerous; consequently, there are many types of policies, among which may be mentioned "vessel," "vessel and freight," "steamboat only," "tug," "yacht," "whaling and fishing," "canal hull," "ferry-boat," "lake," "hull," "tow-boat,"

"barge," "schooner," "hull and cargo," "cargo," "river cargo," "lake cargo," "stranding and collision only," "blanket," "blanket policies on hulls," "builders," "cotton," "coal," "live stock," "lumber," "freight," "war risk," etc. No uniform type of policy has been adopted throughout the maritime world nor even in the United States. Policies issued in the United States are similar in many respects, and their form has been modeled, in part, upon the general marine policy of Lloyd's Association; but no standard form of American policy has been prescribed by law, and the insurance companies and underwriters have not seen fit to standardize their policies. The many types of policies in use are evidence of the desire to adapt the marine insurance business to the widely varying conditions that prevail throughout the shipping industry and ocean transportation. Most marine insurance policies, however, are similar in their general form and essential features, and typical policy contracts may therefore be readily reproduced.

A typical vessel policy of the kind that is issued by marine insurance companies in the United States is reproduced in Form No. 26; a typical cargo policy is shown in Form No. 27. The United States Bureau of War Risk Insurance issues three standard forms of war risk policies, known respectively as its vessel, freight and cargo policies, the latter of which is reproduced in Form No. 28. Lloyd's Association of Underwriters, instead of issuing different forms of policies to meet special conditions, issues one standard form of policy, which is suitable for any kind of insurable property, and in which special clauses to meet particular conditions may be inserted. The Lloyd's standard policy is shown in Form No. 29. The contents of policies issued in Great Britain are regulated and in large part defined by a statute of December 21, 1906.[1]

The many different types of marine insurance policies in use may be variously grouped according to their special characteristics.[2] A policy may be either "valued" or "open." In

[1] *See* William Gow, *Sea Insurance*, for copy of statute and detailed discussion.

[2] *See* S. S. Huebner, *Property Insurance*, chap. xxiv.

Form VIb.

INSURANCE COMPANY OF NORTH AMERICA,
PHILADELPHIA.

No.....

FOUNDED 1792.

CARGO.

.....*ON ACCOUNT OF*.....

In case of loss to be paid in funds current in the United States, to.....

Do make Insurance, and cause.....to be insured, lost or not lost, at and from

upon all kinds of lawful goods and merchandises, laden or to be laden on board the good whereof is master for this present voyage or whoever else shall go as master in the said vessel, or by whatever other name or names the said vessel, or the master thereof, is or shall be named or called.

BEGINNING the adventure upon the said goods and merchandises, from and immediately following the loading thereof on board of the said vessel, as aforesaid, and so shall continue and endure until the said goods and merchandises shall be safely landed as aforesaid. AND it shall and may be lawful for the said vessel, in her voyage, to proceed and sail to, touch and stay at, any ports or places, if thereunto obliged by stress of weather, or other unavoidable accident, without prejudice to this insurance. The said goods and merchandises, hereby insured, are valued (premium included) at

TOUCHING the adventures and perils which the said INSURANCE COMPANY OF NORTH AMERICA is contented to bear, and takes upon itself in this voyage, they are of the *seas, fires, jettisons, barratry of the master and mariners*, unless the assured on cargo be in part owner of the vessel, and all other perils, losses and misfortunes (illicit or contraband trade excepted in all cases), that have or shall come to the hurt, detriment or damage of the said goods and merchandises, or any part thereof. AND in case of any loss or misfortune, it shall be lawful and necessary to and for the assured, his or their factors, servants and assigns, to sue, labor and travel for, in and about the defence, safeguard and recovery of the said goods and merchandises, or any part thereof, without prejudice to this insurance; nor shall the acts of the assured or insurers, in recovering, saving and preserving the property insured, in case of disaster, be considered a waiver or an acceptance of abandonment; to the charges whereof, the said Insurance Company will contribute according to the rate and quantity of the sum herein insured: having been paid the consideration for this insurance by the assured, or his or their assigns, at and after the rate of

AND in case of loss, such loss to be paid in thirty days after proof of loss, proof of interest, and adjustment exhibited to the insurers (the amount of the Note given for the premium, if unpaid, and all sums due to the Company from the assured when such loss becomes due being first deducted, and all sums coming due being first paid or secured to the satisfaction of the insurers), but no partial loss or particular average shall in any case be paid, unless amounting to *five per cent.* PROVIDED ALWAYS, and it is hereby further agreed, that if the said assured shall have made any other insurance upon the property aforesaid, prior in day of date to this Policy, then the said INSURANCE COMPANY OF NORTH AMERICA shall be answerable only for so much as the amount of such prior insurance may be deficient towards fully covering the property hereby insured. And the said INSURANCE COMPANY OF NORTH AMERICA shall return the premium upon so much of the sum by them insured as they shall be by such prior insurance exonerated from. And in case of any insurance upon the said property subsequent in day of date to this policy, the said INSURANCE COMPANY OF NORTH AMERICA shall nevertheless be answerable for the full extent of the sum by them subscribed hereto without right to claim contribution from such subsequent insurers. And shall accordingly be entitled to retain the premium by them received in the same manner as if no such subsequent insurance had been made.

1—Warranted that no claim shall be made in General Average arising from the loss or jettison of Merchandise from on deck.
2—Warranted that in case of partial loss on merchandise this Company shall have notice of such damage within eight days after the landing of such merchandise.
3—All risks to be reported as soon as known and amounts declared as soon as ascertained.
4—This Policy shall be deemed continuous, but it is understood that either party is at liberty to cancel this policy at any time, on giving thirty days' written notice to that effect, which is not, however, to prejudice any risk then pending.
5—Proofs of loss to be authenticated by the Agent of this Company, if there be one where such proofs are taken; otherwise by a Correspondent of the National Board of Marine Underwriters, if there be one where such proofs are taken, but if neither is represented, then by some other recognized Insurance Authority.
6—The sound value at the port or place of destination outward is to be deemed not to exceed the purchasing price at the shipping port, and ten per cent. added thereto, exclusive of duty and freight.
7—The Company to be entitled to premium on all shipments covered hereby, whether reported or not; but should assured fail to report any such shipments, or to pay premium or premium note when due, then the policy as to all subsequent shipments shall at the option of the Company become null and void.

Other insurance upon the property aforesaid, of date the same day as this policy, shall be deemed simultaneous herewith; and the said INSURANCE COMPANY OF NORTH AMERICA shall not be liable for more than a ratable contribution in the proportion of the sum by them insured to the aggregate of such simultaneous insurance. IT IS ALSO AGREED, that the subject matter of this insurance be warranted by the assured free from loss or damage arising from riot, civil commotion, capture, seizure, or detention or from any attempt thereat, or the consequences thereof, or the direct or remote consequences of any hostilities, arising from the acts of any government, people, or persons whatsoever (ordinary piracy excepted), whether on account of any illicit or prohibited trade, or any trade in articles contraband of war, or the violation of any port regulation, or otherwise. Also free from loss or damage resulting from measures or operations incident to war, whether before or after the declaration thereof.

In the event of risk of war being assumed by endorsement under this policy, the assured warrant not to abandon in case of capture, seizure or detention, until after the condemnation of the property insured; nor until ninety days after notice of said condemnation is given to this Company. Also warranted not to abandon in case of blockade, and free from any expense in consequence of detention or blockade; but in the event of blockade, to be at liberty to proceed to an open port and there end the voyage.

MEMORANDUM. It is also agreed, that bar, bundle, rod, hoop and sheet iron, wire of all kinds, tin plates, steel, madder, sumac, brooms, wicker-ware and willow (manufactured or otherwise), straw goods, salt, grain of all kinds, rice, tobacco, Indian meal, fruits (whether preserved or otherwise), cheese, dry fish, hay, vegetables and roots, paper, rags, hempen yarn, bags, cotton bagging, and other articles used for bags or bagging, pleasure carriages, household furniture, skins and hides, musical instruments, looking-glasses, and all other articles that are perishable in their own nature, are warranted by the assured free from average, unless general; hemp, tobacco stems, matting and cassia, except in boxes free from average under *twenty per cent.*, unless general; and sugar, flax, flax-seed and bread, are warranted by the assured free from average under *seven per cent.*, unless general: and coffee, in bags or bulk, pepper, in bags or bulk, free from average under *ten per cent.*, unless general. Profits warranted free from claim for general average, but subject to the same per centum of partial loss as if the insurance were on goods. In case a total loss of profits be claimed, the Underwriters to be entitled to a credit of the same per centum of salvage as if the insurance were on goods, and in case of contribution in General Average for any portion of the goods at the customary sound value, this Company to be free from claim for loss on such portion. Not liable for loss arising from wet, breakage, leakage, or exposure of goods shipped on deck.

Warranted by the assured free from damage or injury from dampness, change of flavor, or being spotted, discolored, musty or mouldy, unless caused by actual contact of sea water with the articles damaged, occasioned by sea perils. In case of partial loss by sea damage to dry goods, cutlery, or other hardware, the loss shall be ascertained by a separation and sale of the portion only of the contents of the packages so damaged, and not otherwise; and the same practice shall obtain as to all other merchandise as far as practicable. Not liable for leakage on molasses or other liquids, unless occasioned by stranding or collision with another vessel.

Warranted by the assured that this insurance shall not enure directly or indirectly to the benefit of the carrier or other bailee, by stipulation in bill of lading or otherwise, and any breach of this warranty, and any act or agreement by the assured, prior or subsequent hereto, whereby any carrier or party liable for or on account of loss of or damage to any property insured hereunder, is given the benefit of any insurance effected thereon, shall render this policy of insurance null and void.

In case of any agreement by the assured, prior or subsequent hereto, whereby any right of recovery of the assured for loss of or damage to any property insured hereunder, against any person or corporation, is released, impaired or lost, which would on acceptance of abandonment or payment of a loss by this Company, have enured to its benefit, but for such agreement, or act, this Company shall not be bound to pay any loss, but its right to retain or recover the premium shall not be affected.

Warranted by the assured, that the assignment of this policy or of any insurable interest therein, as also that the subrogation of any right thereunder to any party, without the consent of this Company, shall render the insurance affected by such assignment or subrogation, void.

IN WITNESS WHEREOF, the President or Vice-President of the said INSURANCE COMPANY OF NORTH AMERICA hath hereunto subscribed his name, and this Policy is made and accepted upon the above express condition, the day of A. D. one thousand nine hundred and

.....PRESIDENT.

Form 27 (continued)

The following is a copy of the endorsement attached to and forming a part of the above policy.

JOHN DOW & COMPANY

1. For account of whom it may concern.

2. Loss, if any, payable to Them or Order.

3. To cover all shipments coming consigned to JOHN DOW & COMPANY, (hereinafter referred to as the assured), or to others for their account or in which they may have an interest, or for which they may receive instructions to insure, said instructions to be made in writing prior to sailing of vessel and prior to known loss or damage.

4. Per steamer and or steamers, including vessels propelled by oil, gas and or electric machinery, and or connecting railroad conveyances.

5. Sailing on and after.....

6. At and from ports and or places in the United Kingdom and Continent of Europe to ports and or places in the United States, direct or via port or ports, including risk of transshipment and lighterage.

7. To cover on merchandise consisting principally of Dry Goods. Dry Goods to be insured: "Free of Particular Average under Three Per Cent, (3%), each case or package to be considered as if separately insured. "

8. It is understood and agreed that this insurance attaches from the time the goods leave factory, store or warehouse at initial point of shipment, and covers thereafter continuously in due course of transportation until same are delivered at store or warehouse at destination.

9. Valued at Invoice Cost £ Sterling @ Franc @ Reichmark @ Austrian Crown @

10. This policy shall not be vitiated by any unintentional error in description of voyage or interest or by deviation of the vessel from the voyage described, provided the same be communicated to assurers as soon as known to the assured, and an additional premium paid if required.

11. The presence of the Negligence Clause and or Latent Defect Clause in the Bills of Lading and or Charter Party, not to prejudice this insurance.

12. Including risk of lighterage to and from the vessel, each craft or lighter to be considered as if separately insured.

13. The risks covered by this policy are to include loss, damage or expense, resulting from explosion howsoever or wheresoever occurring, but it is especially understood and agreed that the above wording is not intended to cover risks of war, riot or civil commotion, or to in any way prejudice the printed wording of the policy excluding risks of this nature.

14. Seaworthiness of vessel and or vessels and or craft admitted as between the Underwriter and the Assured.

15. While goods are on railroad cars, only the risks of fire, collision, derailment and loss occasioned by rising navigable waters are covered under this Policy.

16. While goods are on wharf, the risks of fire and rising navigable waters only are covered by this Policy.

17. This Company not to be liable for more than $50,000 per any one vessel or conveyance at any time, unless otherwise agreed upon.

18. This policy to be deemed continuous, and to cover all shipments as herein provided until cancelled by either party giving the other thirty (30) days' written notice, which cancelment, however, shall not prejudice any risk then pending.

19. Attaching to and forming part of Policy No.....of the INSURANCE COMPANY OF NORTH AMERICA.

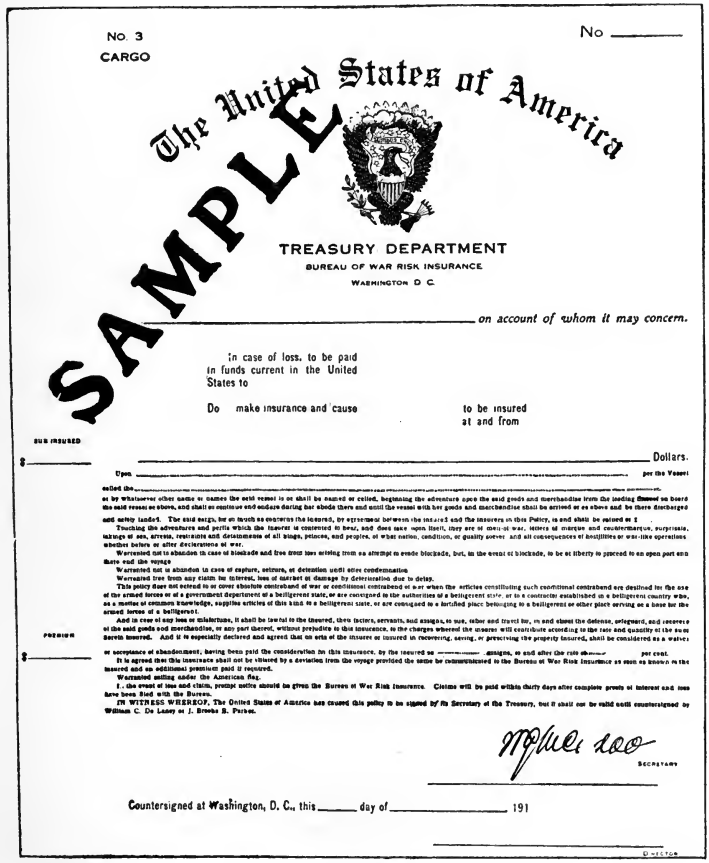
JOHN DOW & COMPANY
Schedule of Rates

At and from ports and or places in the United Kingdom and Continent of Europe, to ports and or places in the United States, direct or via port or ports, including risk of transshipment and lighterage:

First Class Lines.....

Form 27 (concluded)

the former case it definitely states the agreed value of the insured property, while in the latter the value is not specified but must be ascertained in case a loss should occur. A policy likewise may be either "floating" or "named."



No. 3
CARGO

No _____

The United States of America

SAMPLE

TREASURY DEPARTMENT
BUREAU OF WAR RISK INSURANCE
WASHINGTON D. C.

_____ *on account of whom it may concern.*

in case of loss, to be paid in funds current in the United States to

Do make insurance and cause to be insured at and from

SUM INSURED

$_____ _____ Dollars.

Upon _____ per the Vessel called the _____ or by whatsoever other name or names the said vessel is or shall be named or called, beginning the adventure upon the said goods and merchandise from the loading thereof on board the said vessel as above, and shall so continue and endure during her abode there and until the vessel with her goods and merchandise shall be arrived at as above and be there discharged and safely landed. The said cargo, for so much as concerns the Assured, by reference between the Assured and the Insurers on this Policy, is and shall be entered at £

Touching the adventures and perils which the Insurer is contented to bear, and does take upon himself, they are of men-of-war, letters of marque and countermarque, surprisals, takings at sea, arrests, restraints and detainments of all kings, princes, and peoples, of what nation, condition, or quality soever, and all consequences of hostilities or war-like operations whether before or after declaration of war.

Warranted not to abandon in case of blockade and free from loss arising from an attempt to evade blockade, but, in the event of blockade, to be at liberty to proceed to an open port and there end the voyage

Warranted not to abandon in case of capture, seizure, or detention until after condemnation

Warranted free from any claim for interest, loss of market or damage by deterioration due to delay.

This policy does not extend to or cover absolute contraband of war or conditional contraband of war when the articles constituting such conditional contraband are destined for the use of the armed forces or of a government department of a belligerent state, or are consigned to the authorities of a belligerent state, or to a contractor established in a belligerent country who, as a matter of common knowledge, supplies articles of this kind to a belligerent state, or are consigned to a fortified place belonging to a belligerent or other place serving as a base for the armed forces of a belligerent.

And in case of any loss or misfortune, it shall be lawful to the Assured, their factors, servants, and assigns, to sue, labor and travel for, in and about the defense, safeguard, and recovery of the said goods and merchandise, or any part thereof, without prejudice to this insurance, to the charges whereof the insurer will contribute according to the rate and quantity of the sum herein insured. And it is especially declared and agreed that no acts of the insurer or insured in recovering, saving, or preserving the property insured, shall be considered as a waiver or acceptance of abandonment, having been paid the consideration for this insurance, by the insured to _____ assigns, or said after the rate of _____ per cent.

PREMIUM

$_____

It is agreed that this insurance shall not be vitiated by a deviation from the voyage provided the same be communicated to the Bureau of War Risk Insurance as soon as known to the Assured and an additional premium paid if required.

Warranted sailing under the American flag.

In the event of loss and claim, prompt notice should be given the Bureau of War Risk Insurance. Claims will be paid within thirty days after complete proofs of interest and loss have been filed with the Bureau.

IN WITNESS WHEREOF, The United States of America has caused this policy to be signed by its Secretary of the Treasury, but it shall not be valid until countersigned by William C. De Leany or J. Brooks B. Parker.

_____
SECRETARY

Countersigned at Washington, D. C., this _____ day of _____ 191

_____
DIRECTOR

Form 28.—War Risk Insurance Policy

By a floating policy is meant one which describes the limits of the voyage, the value of the property insured, and the type or class of vessel to be employed, but does not specify any particular

BE IT KNOWN THAT

S. G.

£

(No.)

as well in own Name, as for and in the Name and Names of all and every other Person or Persons to whom the same doth, may, or shall appertain, in part or in all, doth make Assurance and cause and them and every of them to be insured, lost or not lost, at and from

upon any kind of Goods and Merchandises, and also upon the Body, Tackle, Apparel, Ordnance, Munition, Artillery, Boat and other Furniture, of and in the good Ship or Vessel called the

whereof is Master, under God, for this present Voyage

or whosoever else shall go for Master in the said Ship, or by whatsoever other Name or Names the said Ship, or the Master thereof, is or shall be named or called, beginning the Adventure upon the said Goods and Merchandises from the loading thereof aboard the said Ship

upon the said Ship, &c.,

and shall so continue and endure, during her Abode there, upon the said Ship, &c.; and further, until the said Ship, with all her Ordnance, Tackle, Apparel, &c., and Goods and Merchandises whatsoever, shall be arrived at

upon the said Ship, &c., until she hath moored at Anchor Twenty-four Hours in good Safety, and upon the Goods and Merchandises until the same be there discharged and safely landed; and it shall be lawful for the said Ship, &c., in this Voyage to proceed and sail to and touch and stay at any Ports or Places whatsoever

without Prejudice to this Insurance. The said Ship, &c., Goods and Merchandises, &c., for so much as concerns the Assured by Agreement between the Assured and Assurers in this Policy, are and shall be valued at

Form 29.—Lloyd's Standard Insurance Policy

Touching the Adventures and Perils which we the Assurers are contented to bear and do take upon us in this Voyage, they are, of the Seas, Men-of-War, Fire, Enemies, Pirates, Rovers, Thieves, Jettisons, Letters of Mart and Countermart, Surprisals, Takings at Sea, Arrests, Restraints and Detainments of all Kings, Princes, and People, of what Nation, Condition, or Quality soever, Barratry of the Master and Mariners, and of all other Perils, Losses, and Misfortunes, that have or shall come to the Hurt, Detriment, or Damage of the said Goods and Merchandises and Ship, &c., or any Part thereof; and in case of any Loss or Misfortune, it shall be lawful to the Assured, their Factors, Servants, and Assigns, to sue, labour, and travel for, in and about the Defence, Safeguard and Recovery of the said Goods and Merchandises and Ship, &c., or any Part thereof, without Prejudice to this Insurance; to the Charges whereof we, the Assurers, will contribute, each one according to the Rate and Quantity of his Sum herein assured. And it is especially declared and agreed that no acts of the Insurer or Insured in recovering, saving, or preserving the property insured, shall be considered as a waiver or acceptance of abandonment. And it is agreed by us, the Insurers, that this writing or Policy of Assurance shall be of as much Force and Effect as the surest Writing or Policy of Assurance heretofore made in Lombard Street, or in the Royal Exchange, or elsewhere in London. And so we the Assurers are contented, and do hereby promise and bind ourselves, each one for his own Part, our Heirs, Executors, and Goods, to the Assured, their Executors, Administrators, and Assigns, for the true Performance of the Premises, confessing ourselves paid the Consideration due unto us for this Assurance by the Assured

at and after the Rate of

IN WITNESS whereof we, the Assurers, have subscribed our Names and Sums assured in

N. B.—Corn, Fish, Salt, Fruit, Flour, and Seed are warranted free from Average, unless general, or the Ship be stranded; Sugar, Tobacco, Hemp, Flax, Hides, and Skins are warranted free from Average under Five Pounds per Cent.; and all other Goods, also the Ship and Freight, are warranted free from Average under Three Pounds per Cent., unless general, or the Ship be stranded.

Form 29 (concluded)

vessel. The policy, in other words, is stated to apply to any "ship or ships." The wording is thus made sufficiently broad to enable a merchant to insure his goods before he is able to ascertain the name of the vessel on which they will be shipped, or to give him protection in case of loss before he is able to make a specific insurance. As soon, however, as the name of the vessel employed on the voyage becomes known to the insured, this information, together with any important attending facts, is "declared" to the underwriter and "indorsed" on the policy, thus making his a "named" policy instead of a "floating" one.[1]

A policy may, moreover, be either "voyage" or "time," which terms sufficiently explain themselves; and it may either be an "interest" policy or a "wager" policy. An interest policy is valid if it is "one clearly indicating that the insured possesses a true and substantial interest in the subject matter of the insurance." A wager policy, on the contrary, as was formerly stated, is not upheld by the courts in the United States, and depends entirely upon the honor of the interested parties. Wager policies have been prohibited by statute in England, the marine insurance or "gambling policies" act of 1909 imposing a penalty of imprisonment for a term not exceeding six months or a fine not exceeding £100 and forfeiture in either case to the Crown of any money received under the contract.[2]

Marine insurance certificates are frequently issued against policies. The certificates make unnecessary the issuance of many copies of a policy to be used for different purposes or of a separate policy for each shipment. An exporter may, for example, obtain marine insurance up to a stipulated total amount and then protect his consignees, bankers, international exchange brokers or creditors by issuing certificates which, when duly countersigned, serve the same purposes as the policy itself.

[1] S. S. Huebner, "Marine Insurance in the United States," in *Annals of the American Academy*, XXVI, pp. 241-99.

[2] 9 Edw. 7 ch. 12, October 20, 1909.

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PART III

THE ORGANIZATION OF OCEAN CARRIERS; THE RELATIONS OF THE CARRIERS WITH ONE ANOTHER AND THE PUBLIC

CHAPTER XVII

ORGANIZATION OF OCEAN TRANSPORTATION

Four aspects of organization, 263. Early evolution, 264. Early trading companies and merchant traders, 264. Rise of common carriers, 266. Magnitude of modern steamship lines, 268. Steamship consolidations, 270. International Mercantile Marine Company, 270. American International Corporation, 272. Business organization of steamship lines, 272. Diagram of United Fruit Company's organization, 274. Private steamship services, 275. Evolution of shipping in American trade summarized, 275. References, 276.

For the performance of the many services described in the preceding chapters a high degree of organization has developed in the ocean transportation business. To describe this organization it is necessary to discuss at least four aspects of the subject: the evolution and present organization of ocean carriers; the relations of the carriers with each other; the relations of the carriers with the public, with shippers and with travelers who purchase the service; and the relation of the carriers with the government, or the policy and practice of governmental aid and regulation. The last of these subjects will be discussed in a separate section, part four, of this volume. In the present chapter the evolution and present organization of ocean carriers will be considered, and in the five following chapters the relations of the carriers with each other and with the public will be discussed.

The present organization of the ocean transportation service is the result of an evolution of many centuries. After the disintegration of the Roman Empire the Venetian merchants sent their vessels out in fleets accompanied by naval convoys, the cargo vessels of the fleets being owned by the merchants themselves. Later it became the practice of trading cities to unite in leagues. During the centuries 1300 to 1600, for example, the trade and shipping of the Baltic and North seas was con-

trolled by the Hanseatic League of the Northern German commercial cities. In the latter part of the Middle Ages the Venetian trading fleets and the Hanseatic League were supplemented by the chartered trading companies of England, France and Holland, which received monopolies of the trade in certain sections of the world or in certain staple commodities. Such were the famous British East India Company, the Dutch East India Company, the Muscovy Company and the early trading companies operating in America.

Early Trading Companies and Merchant Traders

The ocean vessels in the earliest stages of American commerce were owned by individual merchants who transported occasional cargoes for their neighbors but used their vessels mainly to conduct their own trading enterprises. They disclosed such lucrative possibilities that a number of large trading companies were soon organized. The British West India Company, the Dutch West India Company, the London, Plymouth, Massachusetts Bay, the Canada and New Amsterdam companies for a time conducted most of the trade and shipping of the New World. They were colonization, governing and land companies, but their principal purpose in most instances was trade and shipping.

These trading companies, however, lost their monopolistic trading rights long before the Revolutionary War.

After the Dutch lost New Amsterdam, in 1664, the trading company had no place in the commerce of the American colonies, which was handled by the independent traders of Great Britain and the American colonies; and was, as a matter of fact, developed mainly by the colonists themselves, who, as fishermen, merchants, farmers and planters, individually operated such vessels as their business required, or as their instinct for foreign ventures prompted. Conducted in this individual and unorganized manner, the oversea trade of the colonies grew slowly, but more or less steadily, until the establishment of the National Government under the Constitution

made possible the rapid expansion of the maritime activities of America. The increasing trade of the people of the United States brought about both a technical improvement in shipping and a higher degree of organization in the service of ocean transportation.

The first result of the growth of the foreign trade of the United States during the latter part of the eighteenth century and the early years of the nineteenth was to develop the great merchant trader, such as Stephen Girard, of Philadelphia, and Elias Hasket Derby, of Salem, Mass. Girard was active in commerce from 1780 to 1812, and lived until 1831; Derby died in 1799. The manner of carrying on ocean commerce in Derby's time is well described by W. L. Marvin in his book on The American Merchant Marine, in the following passage (p. 198):

> Those old Salem merchants were shipowners, and something more. They did not, as a rule, carry freight for others. When Mr. Derby or Mr. Gray or Mr. Peabody built a ship he calculated to use it in his own mercantile ventures. He would furnish it with an outward freight, and the sale of this procured a homeward cargo, which the merchant would dispose of from his own warehouses. Mr. Derby owned about forty vessels, and the largest of them made forty-five voyages for him to India and China. Most of his enterprises were very successful.

The ships operated by Derby and the other merchant traders of his day were small sailing vessels of 300 tons and less. Such vessels could readily be built and fitted out with crew and cargo by an individual with but a small amount of capital, who would have been unable to own and operate a number of vessels and to engage in the carrying service as distinct from the business of a trader. Traders who had insufficient capital to provide themselves with vessels individually, purchased ships coöperatively, and they, too, operated them primarily in connection with their own trading ventures. Sometimes the owner or a "super cargo" would go with the vessel to conduct the trading at the end of the voyage in far-away ports; often, too,

the captain of the vessel was a skilled trader as well as a navigator, and sometimes he as well as the vessel's crew were permitted to share in the profits of the voyage. Some vessels were similarly owned and operated by producers, such as the tobacco planters of Virginia.

Rise of Common Carriers

The transition from private carriers owned singly or cooperatively by merchants and producers to public or "common" carriers was gradual. Some of the merchant-shippers had frequently transported cargoes for others in addition to their own wares, and they had carried the mails and small numbers of passengers. The practice of hiring or chartering ocean vessels from their owners also became more common as the demand for public carriers grew.[1] The War of 1812, however, marked the real turning point in the transition. The merchant carrier lost ground rapidly during the trade expansion which followed the restoration of peace in Europe and America.[2]

The two types of public ocean carriers that emerged were the chartered or "tramp" vessel and the ocean line, the respective services of which were discussed in Chapter XI. It was also stated there that the tramps depend in part upon their owners direct and in part upon ship brokers to supply them with cargoes. They operate upon the basis of charter contracts or "parties" which cover either a given voyage or a stated period of time. Some vessels are owned by individual shipowners; some by the captains who operate them; some by partnerships; and others by companies. In the past the partnership type of ownership, in which a vessel was divided in shares ranging from one-eighth to one-sixty-fourth of its value, was of great importance. The practice of dividing vessels into eighths was especially common in Great Britain from 1840 to 1850, and

[1] J. R. Smith, *The Ocean Carrier*, 94.

[2] E. R. Johnson and Collaborators, *History of Domestic and Foreign Commerce of the United States*, II, 118.

the British sixty-fourths became of importance during the years 1850 to 1880.[1] At present ownership by companies, some of which are small concerns while others own many tramp sailing vessels or steamers, is of principal importance, both because of the limited liability which the stockholders of a corporation legally enjoy and because a modern tramp steamer is larger and the capital needed to construct it is much greater than in the old sailing vessel days.

As the foreign trade of the United States and the passenger traffic between Europe and America became large and of fairly constant volume, ocean transportation came to be a business increasingly distinct from the business of the merchant or trader, and lines of sailing vessels were put into service by companies whose sole business was the ownership and operation of ships.

Efforts to establish ocean lines were made before the Revolutionary War, but the vessels advertised did not perform a regular line service. According to Marvin, the first line of sailing vessels in the American trade was the Black Ball Line, which began running between New York and Liverpool in 1816. He states that "in 1822 a second line to Liverpool was founded; in the next year a third line to Hull." The ships of these "packet" lines, as they were called, were larger than the ordinary merchant vessel of their time; they had regular sailing dates; they carried the mails, the cargoes of highest value and the steerage and cabin passenger traffic. These early packet ships were staunch vessels, constructed for safety and economy rather than speed. The demand for speed came later, and was met by the lines of clipper sailing vessels and by the steamship lines.

The lines of sailing "packets" and clippers were gradually superseded after 1850 by the steamship lines. For the United States this meant a decline in the tonnage of registered shipping; for Great Britain it meant a rapid expansion of her merchant marine; for the ocean transportation service generally it was the beginning of a rapid development. The first

[1] A. W. Kirkaldy, *British Shipping*, 165-170.

effect of steam was to increase the speed and regularity of ocean transportation, and thus to cause a rapid growth in the traffic for which lines of vessels—as contrasted with the chartered ship without a fixed route and a definite schedule—are best adapted, viz., passengers, mail and express, package freight or general cargo, and perishable commodities.

Magnitude of Modern Steamship Lines

The progress of ocean transportation since 1850 and the working out of an economical organization for handling the traffic for which steamship lines are best adapted have had two general results. The small steamship company operating four or five small vessels over a single route has grown to be a company owning scores of ships, with an aggregate tonnage of from 100,000 to more than one million tons gross, and engaged in traffic over numerous ocean routes. These great companies, furthermore, have found their competition with each other increasingly severe, and they have been forced to seek to control their interrelations by associated action and traffic agreements, or by the amalgamation of competing companies by means of purchase and sale. As in industry so in transportation, both by railway and on the ocean, steam power has revolutionized business methods and compelled the substitution of organization and associated effort for the unorganized struggle of competitive individual activity.

The magnitude of the great ocean lines is clearly shown in the accompanying table (No. 11) which contains the number of vessels and the tonnage operated directly by the ocean lines having a gross tonnage of 300,000 tons or over At the head of this list is the Hamburg-American Line, which, in 1914, before the outbreak of the war in Europe, operated 215 vessels of 1,168,000 tons gross. Its line is like a great railroad system with trunk lines and branch lines or feeders. Its services extended from Hamburg tc Mexico and Cuba; to Japan, China, Singapore, Penang and Manila; to India; to Brazil; to the River Plate; around the Horn to the western seaboards

of the Americas as far north as San Francisco; to the Persian Gulf, and to many ports on the west coast of Africa. It also operated many services to and from the United States and Canada. Its lines extended from Hamburg to New York, Boston, Baltimore, Newport News and Norfolk, Savannah,

TABLE 11.—VESSELS AND GROSS TONNAGE OF LARGEST OCEAN LINES[1]

OCEAN LINE	NUMBER OF VESSELS		GROSS TONNAGE	
	1914	1915	1914	1915
Hamburg-American Line	215	193	1,168,000	1,135,000
North German Lloyd	154	138	795,000	721,000
British India Steam Nav. Co., Ltd.	141	149	670,000	617,000
Peninsular and Oriental Steam Navigation Co., Ltd	74	75	529,000	509,000
Holt and Company	70	73	467,000	484,000
Nippon Yusen Kaisha	90	97	404,000	448,000
White Star Line	33	31	472,000	434,000
Ellerman Line	97	93	432,000	432,000
Elder, Dempster and Co., Ltd	103	100	330,000	419,000
Leyland and Co., Ltd	40	51	249,000	411,000
Furness, Withy and Co., Ltd	123	107	396,000	393,000
Cie. Générale Transatlantique	85	83	361,000	358,000
Messageries Maritimes	64	64	313,000	322,000
Hamburg-South American	66	62	348,000	316,000
Cunard Steamship Co., Ltd	29	31	342,000	310,000
Union Castle Mail Steamship Co., Ltd	43	43	317,000	310,000
Royal Mail Steam Packet Co	62	62	306,000	306,000
"Hansa" Deutsche	74	49	363,000	229,000

[1] Compiled from *Whitaker's Almanack*, 1915 and 1916; and *Lloyd's Register*, 1914-1915.

New Orleans, Galveston, Montreal, Halifax and St. Johns and occasionally to Port Arthur and Mobile. Its vessels sailed from New York to Brazil; to the west coast of Africa; to Genoa and Naples; to Cuba, Haiti, Colombia and Panama, and to Oriental ports. Some of these trades were divided into separate services too numerous to detail. Altogether, the Hamburg-American Line operated "70 different services touching

at about 300 ports of the world." [1] Although many companies still operate single lines over one fixed route, the Hamburg-American Line illustrates the tendency to operate systems of lines over different routes and to many widely separated ports.

Since the large tonnage of the Hamburg-American, North German Lloyd, British India Steam Navigation, Peninsular and Oriental, Holt, Nippon Yusen Kaisha, Ellerman, White Star and other lines listed in Table No. 11 is operated by individual lines, it does not disclose the full magnitude of the world's greatest line services. There has been a tendency among ocean lines to consolidate. Thus the Royal Steam Mail Packet Company, which operates 62 vessels of 306,000 tons gross, controls the Lamport and Holt Line, the Pacific Steam Navigation Company, Elder, Dempster and Company, the Union Castle Line and at least eight smaller lines. The Royal Mail combination controls about 330 vessels of about 1,618,000 tons gross. The Hamburg-American Line also controls certain small lines which, prior to the European War, gave it about 430 vessels with a gross tonnage of 1,360,000. In 1847 this line began business with a few sailing vessels. The North German Lloyd group of lines similarly comprises a gross tonnage of about 825,800, and the Cunard group 542,000 tons.

The largest American ocean line consolidation is the International Mercantile Marine Company. It is an American company but the bulk of the tonnage controlled by it is foreign. In 1902 it brought under one ownership and management five large transatlantic lines, whose aggregate fleet comprised 136 vessels, with a tonnage of 1,034,884. The lines brought together were the Leland Line, the White Star Line, the Red Star Line, the Atlantic Transport and the Dominion Line. It also controls the National Line through shareholdings by the Atlantic Transport, but the National Line at present owns but two vessels. It has a 44 per cent holding in the line between London and New Zealand, operated by the Shaw, Saville and Albion Company, Ltd.; a 25 per cent holding in the Holland-

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations*, I, 542.

America Line, and a small holding in the Thompson Line, Ltd., which runs from London to Australia.[1]

In forming this merger, Mr. J. P. Morgan and his associates sought to include the powerful Cunard Company and the two great German companies, the Hamburg-American and the North German Lloyd; but the Cunard Company was given a largely increased subsidy by the British Government to remain an independent British company, and the two German lines were under contract with their Government not to sell out to a foreign company. The German lines, however, entered into an agreement with the International Mercantile Marine Company whereby a territorial division of traffic was effected, and the main results of consolidation were secured.

Since most of the vessels comprising the fleets of the International Mercantile Marine Company lines are British, there was danger that their British registry would be canceled, with the resultant loss of British mail subsidies and a possible increase in operating costs. An agreement to run for a term of 20 years from 1902 was therefore entered into with the British Board of Trade and the Admiralty. It provides that:

> on the condition that the vessels actually taken over, as well as half of any future additions to the fleet, are kept under the British flag, and that the original companies are kept alive, with a majority of the directors British subjects, and that the certain vessels just referred to are still kept at the Government disposal in case of need—the British Government will, for its part, continue to the vessels their British privileges.[2]

In 1915 the International Mercantile Marine Company's fleet comprised 1,201,000 tons gross, and arrangements had at that time been made for an increase to 1,354,000. Although this places it almost on a par with the Hamburg-American merchant fleet, yet it has not been successful financially. It was over-capitalized when the various lines composing it were taken over in 1902, and as shipping had been prosperous the

[1] Twenty per cent ordinary shares; 40 per cent of management shares.

[2] D. Owen, *Ocean Trade and Shipping*, 61.

purchases were made at "boom" prices. In October, 1914 and 1915, it did not pay the interest on its bonds and a receiver was consequently appointed on April 3, 1915. A reorganization plan was thereupon formulated and the receivers were discharged in October, 1916.

In 1915 the movement to consolidate steamship lines in the foreign trade of the United States was given a renewed impetus in the organization of the American International Corporation. This corporation, which is widely interested in the promotion of the commerce of the United States, has acquired an interest in the International Mercantile Marine Company and the United Fruit Company. It is, moreover, associated with W. R. Grace & Company, which, in 1916, acquired control of the Pacific Mail Steamship Company. The American International Corporation, the International Mercantile Marine Company, the Pacific Mail Steamship Company and W. R. Grace & Company, moreover, acquired the property of the New York Shipbuilding Company in November, 1916.

Ocean steamship lines differ from tramps in that they own much property in addition to their vessels. They frequently own water frontage and docks and wharves at the ports served by them; warehouses and sheds; tugs, lighters and other harbor craft; freight-handling appliances; and they may even provide themselves with coaling stations, although they usually depend upon outside concerns for their fuel supply. The lines that do not own the necessary port facilities are obliged to make definite arrangements. They frequently lease docks and wharves on time contracts.

Business Organization of Steamship Lines

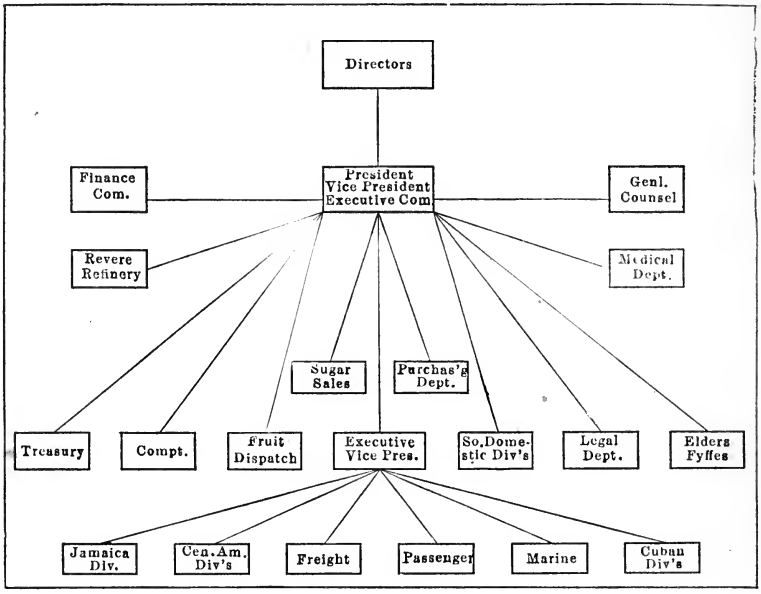
Lines also differ from tramps in that they require an elaborate business organization. Like railroads, they advertise and establish agencies at many points to develop passenger traffic; they send out soliciting agents and establish agencies to increase their freight business. Some lines turn the work of development of traffic over to steamship agents; and at times the

entire operation of a line is conducted by such concerns. Steamship agents in many instances are large concerns; they may even undertake the establishment of lines on their own account. A large New York steamship agency, for example, handles the American freight business, in whole or in part, of the Holland-America, United Tyser, Hamburg-American, Royal Dutch West India Mail, Hamburg-South American, Scandinavian-American, Hansa and United States, China and Japan steamship lines.

Many ocean lines, however, have a detailed business organization of their own, similar to that of a large American railroad. Ordinarily there are a president, who is the chief executive, and several vice presidents acting as either general executives in charge of financial or other corporate affairs or as the executive heads of specific departments. There is a secretary in charge of corporate correspondence, and security transfers and other corporate matters are assigned to him. The general solicitor has charge of the law department; the treasurer of the treasury department; the comptroller or general auditor of the accounting department; the purchasing agent or supervising purchasing agent of the purchasing department. Any of these departments may, however, be supervised directly by a vice president.

Traffic work, such as the development of traffic, quoting of freight rates and fares, and the issue and distribution of tariffs and tickets, is handled by the traffic department. Ordinarily it is supervised by a traffic vice president and is in direct charge of a general traffic manager, and if the line transports both freight and passengers there would be two of those traffic managers, one in charge of the freight and the other in charge of the passenger department. Under the traffic managers there are general freight and passenger agents, and district or division freight and passenger agents. The superintendent of stewards' department may also be responsible to the general passenger traffic manager; and if the line has traffic arrangements with outside freight or passenger agencies, the traffic department may have charge of their supervision.

The maintenance and construction of equipment is in charge of a marine department, under a supervising engineer, chief marine engineer, or otherwise designated officials. This so-called marine department may also have charge of the operation of the line; or there may be a separate department for that purpose. The operation or the actual handling of the freight and passengers, the sending out of vessels, etc., is



Organization of the United Fruit Company

locally subdivided into divisions, each of which is managed by an official variously known as manager, general manager, division or local manager.

The business organization of an ocean line is influenced by the volume of its traffic, by its length, by the number of separate services rendered, by the number of ports served, by the personal views of those in control, and by other considerations. There is no uniform plan of business organization. The dia-

gram on page 274 of the steamship service of the United Fruit Company, however, indicates how the eighty or more vessels and the many other marine properties of that line are managed.

Private Steamship Services

The public services of the tramps and lines are supplemented by the private services of numerous industrial bulk carriers. As was stated in Chapter XI, many industrial concerns own or charter vessels which they operate directly in connection with their industrial plants. They frequently carry cargoes for others, but their primary purpose is to transport freight for the concerns which operate them. They are successors to the old merchant carriers which performed the world's ocean carrying trade before the advent of the tramp and line, but they differ in that most of them are operated by producers rather than by merchants.

Private ocean carriers cannot always be distinguished from regular ocean lines because some of them transport much freight for the shipping public and even passengers. Sixty-eight per cent of the freight carried by the vessels of the United Fruit Company in 1912, for example, was carried for account of the company, but its steamship service is generally regarded as a regular line service because as much as 32 per cent of its freight traffic consisted of merchandise belonging to the public, and in addition it conducted a general passenger service. The term "industrial bulk carrier" refers more particularly to the private ocean services found in the iron and steel, iron ore, coal, lumber, petroleum and similar industries.

Evolution in American Trade Summarized

The evolution of the ocean transportation service during the past century may be summarized with reference to American trade as follows: During the early decades of the last century the volume of foreign trade became large enough to cause individuals, and companies who were not merchants or traders, to engage largely in the carrying trade. The ocean

transportation service became a distinct business. Two kinds of common carriers then came to be differentiated on the ocean: lines and chartered vessels or tramps. The introduction of steam followed, and the traffic handled by line vessels was able to expand with great rapidity. In course of time, approximately by 1870, the technical improvement of the marine engine and the growth in the size of ocean vessels so reduced the cost of moving bulky traffic by steam power as to make the tramp steamer an economical carrier of cargo freight. Charter traffic could be handled both by steamers and sailing vessels; it increased rapidly in volume, and has tended steadily to pass from the sailing vessel to the steamer. Then also it became profitable for industrial concerns having bulk freight to transport to provide themselves with an ocean service largely private in nature and acting as common carriers for the public only to fill surplus space, to obtain return cargoes or to reduce operating costs. Lastly, there is now discernible a tendency for line steamers to share more and more in the traffic that formerly was handled by chartered vessels. This is the result of the growing volume and regularity of international exchanges, of the ability of the line steamers to take freight at lower rates than were formerly possible, and of the increasing value of doing business rapidly. Electric communication between all parts of the world and perfected international banking facilities are causing international trade to be handled more and more expeditiously. Time is money to an increasing extent even in the bulky traffic of ocean commerce.

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CHAPTER XVIII

MONOPOLY AND COMPETITION IN THE OCEAN TRANSPORTATION SERVICE

Monopoly defined, 277. Ocean and rail competition contrasted, 278. Financial statement of cargo vessels, 280. Financial statement of representative passenger lines, 281. Competition in line and tramp services contrasted, 283. References, 285.

A BUSINESS or a service may be competitive or monopolistic, or it may be in part monopolistic and in part subject to competition. A monopoly may be complete or partial. Complete monopoly is the absence of all competition as regards the fixing of prices. The essence of monopoly is the power to decide what price the purchaser shall pay; and the degree of monopoly possessed by a producer or a carrier is determined by the measure of his ability to fix the charge.

If purchasers can compel those who have commodities or services to sell to accept the lowest price which they will take rather than not make a sale, the business or service is one in which there is free competition; if the producer or carrier can compel the buyer to pay all he will give rather than forego having the article or service he desires, there is complete monopoly. If neither of the parties to the transaction, the producer and the consumer, the carrier and the shipper, can compel the other to accept the least favorable terms, there is neither free competition nor complete monopoly. If the carrier cannot compel the shipper or traveler to pay all he would be willing to pay rather than go without the service; or, stated otherwise, if the buyer of the service can compel the carrier to charge less than the maximum value of the service to the buyer, the rate or fare is partly competitive

and partly monopolistic. The carrier possesses a partial monopoly.

While the power to establish the charge is the essence of monopoly, it is also clear that the charge or price cannot be wholly dissociated from the transportation services of the carriers and their efforts to increase traffic otherwise than by rate cutting. A group of carriers may agree upon their rates, and yet they may compete in the services which they render and make vigorous efforts to increase their respective shares of the total available traffic by advertising, solicitation, or by improving their services.

Ocean and Rail Competition Contrasted

The magnitude of some of the present-day lines and their tendency to consolidate; the rise of the companies with large fleets of tramp vessels; and the almost universal tendency of ocean lines in recent years to organize conferences, pools or agreements are incontrovertible evidence that the ocean transportation business is less competitive than in the past. There are various reasons, however, why even now it continues to be more competitive than the railway business:

1. The ocean is a highway free to all persons. Not only may every vessel sail the sea without purchasing a right-of-way, it may also enter the ports of every country to load and unload cargo. A small charge may be made for the privilege of entering the port and using its facilities, but the rate of charges is the same for everybody. Even at ports where the commercial facilities have been provided by the capital of a private company, the right of shippers and carriers generally to use those facilities is frequently maintained by public regulation.

2. A ship may start from any port and reach any other port, in any sea, not closed by law or physical conditions. The ocean vessel has a far greater range of movement than has the railroad car. The entire sea, all its routes and their termini, are available for the ship. There is less chance "to divide

the field" of traffic operations at sea, and restrict the business of certain ocean routes and termini to a single carrier or combination of carriers. Even though the lines may combine, the competition of the independent vessel may and does, like the tides, reach every shore.

3. It is easier to engage in ocean transportation than in the railway business. The minimum amount of capital required to enter upon the former is relatively small. There are small ships as well as large ones that may ordinarily be purchased or hired by any one desiring to become a public carrier, or by a manufacturer or trader who may desire to make but a single shipment. Except in unusual times or in restricted fields, a vessel may usually be chartered as readily as a house may be rented. In each large port there are ship brokers that are in cable connection with other large ports, and that are thus informed regarding ships in all parts of the world. The exporter of locomotives or bridges from Philadelphia, of wheat from Chicago, or of cotton from New Orleans, may either engage some existing carrier to handle the traffic, or, if the rates charged seem unreasonably high, he may charter a vessel either for a single trip, or for such time as he may wish, and thus transport his own goods.

The investment needed to own cargo vessels is relatively small in comparison with the funds required for a large ocean line or for a railroad. Table 12 shows that during the period 1904 to 1916 the average paid-up capital and indebtedness of over 500 British cargo vessels was less than $80,000,000. The ownership of these vessels was scattered among more than 100 different ship-owning concerns.

It is more difficult to enter the business of ocean-line transportation than to operate independent vessels, because the amount of capital required is greater and deferred rebates and other practices of existing lines, as will be described in the following chapter, sometimes make it difficult for newly organized lines to obtain traffic or to withstand organized opposition. Ocean lines, however, differ sharply from railroads in that they do not require the vast capital investment

TABLE 12.—FINANCIAL STATEMENT OF CARGO VESSELS, 1904–1916 [1]

YEAR	Paid-up capital	Debenture loans, bills payable, etc.	Book value of steamers	No. of Vessels	Tons gross	Profit on voyages	Dividend on capital	Per cent
1904	£7,594,278	£3,157,128	£10,753,752	393	1,184,358	£640,541	£277,129	3.64
1905	8,577,424	3,775,681	12,353,849	464	1,362,049	762,698	286,005	3.33
1906	8,081,800	3,669,142	12,130,285	433	1,336,823	979,545	327,445	4.05
1907	9,167,259	4,448,905	13,732,764	490	1,516,401	1,079,257	383,077	4.17
1908	9,622,401	4,409,343	14,338,652	533	1,695,837	1,145,387	335,165	3.48
1909	9,517,011	4,985,051	13,915,494	508	1,603,341	647,997	179,886	1.89
1910	9,457,650	5,548,999	14,610,877	522	1,725,335	842,511	217,681	2.30
1911	9,883,584	6,261,588	15,717,739	535	1,833,360	1,471,541	370,061	3.73
1912	10,559,843	6,058,067	16.477,354	561	1,981,209	2,869,516	720,558	6.82
1913	10,964,108	5,490,388	16,682,965	598	2,121,427	5,505,850	1,377,615	12.56
1914	10,842,026	4,677,571	15,587,708	569	2,067,403	3,828,093	1,126,069	10.38
1915	14,107,510	6,356,310	17,619,870	585	2,338,868	4,742,103	1,613,673	11.43
1916	16,822,359	8,351,803	16,012,855	499	1,952,503	10,966,863	2,743,102	18.50
13 years average, 1904–1916	£10,245,942	£5,168,459	£14,610,320	514	1,747,609	£2,729,377	£765,959	7.47

[1] Compiled from *Fairplay*.

of the latter. Table 13 contains the financial statement, for 1912, of 24 British passenger-carrying lines operating 884 vessels of 4,182,828 tons gross. Their combined capital and indebtedness was less than $250,000,000, or less than that of a single American railroad of medium size. The table also shows that their combined capital and indebtedness in 1916 was $395,300,000 and the book value of their fleets less than $306,000,000.

4. One may retire from the field of ocean transportation with relative ease. Although property in a ship is "fixed capital," in that the ship can be used only for the one service of transportation, the ownership of this fixed capital may readily change hands. Representing a relatively small amount of capital, as compared with a railroad a buyer may under ordinary conditions readily be found. At least there will be little difficulty in finding a person who will charter a freight vessel. Ocean vessels, whether line or tramp, are not tied down to a fixed right-of-way as railroads are. If they prove unprofitable on one route, they may be shifted to another or sold to a concern which will operate them elsewhere. Some financial loss may be incurred, but the sale can be made more easily than in the railroad business.

Table 13.—Financial Statement of Representative Passenger Lines in the Years 1912 and 1916 [1]

Name of Company	Paid-up capital	Debentures	Sundry creditors and loans	Book value of fleet	Sundry debtors, investments, cash, etc.	Fleet		Dividend paid	Per cent-age
						No. of vessels	Tons gross		
African Steamship Co.	£675,000	£153,910	£165,322	£1,034,832	£138,548	23	64,791	£50,625	7½
Anchor Line (Henderson Bros.)	575,000	465,000	634,096	1,595,958	375,319	19	112,214	35,582	6.18
Australasian United Steam Navigation Co.	343,620	246,845	250,510	640,612	215,658	23	57,077	27,489	8
Booth Steamship Co.	550,000	400,000	397,125	1,374,249	294,026	37	105,086	41,500	7.54
British & African Steam Navigation Co.	650,000	372,200	142,594	918,055	291,725	40	107,784	32,500	5
British India Steam Navigation Co.	1,657,200	543,420	1,127,218	3,384,299	900,131	108	458,619	106,790	6.44
Bucknall Steamship Co.	102,250	290,462	419,420	648,071	171,332	27	117,476	*nil*	—
China Mutual Steam Navigation Co.	508,235	*nil*	184,570	832,410	113,317	19	118,895	50,208	9.87
Clan Line	500,000	750,000	243,290	1,996,187	27,141	53	223,019	30,000	6
Cunard Steamship Co.	1,600,020	3,600,000	476,544	5,571,280	1,176,347	26	267,017	96,001	6
Elder Line	500,000	233,810	95,099	689,299	163,909	30	91,083	25,000	5
Ellerman Lines	1,400,000	*nil*	887,586	2,162,558	243,000	87	355,791	98,000	7
Houlder Line	474,245	200,000	278,430	348,532	381,043	8	36,062	*nil*	—
Imperial Direct West India Mail Service Co.	250,000	105,550	125,474	248,730	15,777	6	28,124	*nil*	—
Indo-China Steam Navigation Co.	495,890	277,050	26,910	764,208	132,313	38	90,428	14,877	3
F. Leyland and Co.	2,614,350	335,600	191,663	2,167,087	798,439	41	251,155	*nil*	—
National Steamship Co.	225,000	34,825	3,758	102,071	13,578	2	16,005	*nil*	—
New Zealand Shipping Co.	696,384	385,100	722,960	1,423,893	829,905	24	164,149	69,638	10
Oceanic Steam Navigation Co.	750,000	1,250,000	3,554,083	8,136,685	1,161,137	43	425,579	450,000	60
Orient Steam Navigation Co.	319,310	712,500	640,506	1,948,128	152,642	9	97,390	73,875	23.13
Pacific Steam Navigation Co.	1,477,125	*nil*	285,222	1,486,170	738,413	35	167,826	88,627	6
P. and O. Company	3,500,000	1,800,000	1,027,541	3,296,592	4,793,444	89	447,391	291,060	8.31
Prince Line	601,495	*nil*	314,927	1,094,403	42,556	38	142,275	60,149	10
Royal Mail Steam Packet Co.	1,700,000	2,250,000	1,196,516	4,875,183	817,454	59	237,502	85,000	5
Total 1912	£22,165,124	£14,406,272	£13,391,364	£46,739,492	£13,987,154	884	4,182,828	£1,726,861	7.79
Total 1916	£32,519,904	£19,069,636	£29,654,008	£62,872,792	£42,170,479	869	4,908,021	£3,858,846	11.87

[1] Compiled from *Fairplay*.

5. Ocean carriers, even the lines which are parties to conference agreements or pools, are subject to commercial competition. The rates from the United States must be made with reference to those from rival commercial countries, and the relative rates from different ports in the same country are greatly influenced by the rivalry of the ports. The commercial or industrial competition affecting railroad rates is mainly domestic; that influencing ocean rates is international in scope. Only a part of the railroad's traffic enters into the foreign trade, while all or nearly all of the freight traffic of ocean carriers is international, and is subject to the competition between nations, which becomes more intense as the foreign trade of the world increases. The time may come when this international trade rivalry will also exert a wider influence upon American railroad rates than at present.

These five points indicate the main differences between the railway and ocean transportation services. The railroad company operates over a well-defined territory from which other rail carriers are largely excluded. The roadway, terminal facilities, and equipment represent a large investment of fixed capital, which cannot readily be sold or leased. The owners of vessels, on the contrary, are not restricted to any territory, and it is only occasionally that they have prevented other owners from entering the field selected for their operations. The only fixed capital the ocean carrier ordinarily need have is in his floating equipment; nature provides the roadway, and the public usually dredges the harbor channels and basins.

Property in vessels can ordinarily be sold or leased readily. A freight vessel is more easily sold or chartered than a passenger steamer, but even for the latter there can usually be found some individual or company who will buy or lease, although the owner may be obliged to sell at a sacrifice, or may be compelled to refit the ship for the freight service before he can dispose of the property.

The large ocean carrier who is operating one or several lines, comprising numerous vessels, may find it advantageous

to construct terminal facilities, but, in many cases, the central or local government, some public "trust," or some dock company, railroad, or industrial concern, constructs and manages the docks and wharves, and leases to the large lines such facilities as they may require. Even the largest steamship companies have secured exclusive possession of neither the terminals nor the routes of any portion of the ocean transportation field, although for certain routes, and for the passenger service and the mail and express business, the traffic position of certain powerful lines is now so strong that outside competition has become difficult for the line business they handle. Interline competition has in recent years been restricted through conference arrangements of many kinds. Yet the competition between tramps and between tramp vessels and lines persists, and the commercial competition between rival countries and ports is ever present.

Competition in Line and Tramp Services Contrasted

The difference between line traffic and charter traffic needs to be kept clearly in mind in analyzing the nature of competition in the ocean transportation service. In charter traffic competition is full and free, except in certain restricted regions of minor importance in ocean transportation. There is little likelihood that the service of transporting upon the ocean the great staple articles of international and coastwise commerce will be monopolized. As long as the ports of the world are open on equal terms to all shippers and carriers, as long as men may buy or charter vessels and sail them at will upon the high seas, the rates charged for the ocean transportation of the great staples of industry and trade, and hence for the larger share of the tonnage of ocean freight, will be competitive.

The partial restriction of line competition has been possible because the establishment of a line of large fast steamers, each of 10,000 to 40,000 tons or more gross register, capable of maintaining a speed of from 15 to 25 knots, having weekly

or more frequent sailings from each side of the Atlantic or Pacific is a most costly venture. To fulfill the requirements that must be met in the present-day passenger and mail services means the investment of several millions of dollars, and the organization of a business that only a large corporation can undertake. The number of ocean lines is consequently limited, and if the small number of rivals can come to an agreement as to rates, division of traffic, or pooling of earnings, competition can be regulated and some measure of monopoly can be established. Each line has a very considerable investment at stake, and while its ships can be transferred to some other ocean route and to some other service, the vessels, having been constructed and equipped with special reference to the particular service they are performing, cannot, in normal times, be sold or transferred to other routes without large financial loss.

The ungoverned struggles of the giant lines for traffic are apt to be financially destructive for both or all combatants. Like the traffic wars of powerful railroad companies, the competition of great steamship companies, if unrestricted, becomes so severe as to cease to be a healthy stimulus to business; artificial and unstable conditions of trade are created, and at the close of the struggle the carriers find themselves financially weak, and less able than they were at the beginning of their traffic war to improve their service and to keep their equipment and facilities abreast of business needs.

As with rival railroads so with competing steamship lines, coöperation for the regulation of competition is necessary. This is shown clearly by the history of the interrelations of steamship companies, by the rate and traffic agreements and pooling arrangements they have made, by the merging of small companies into larger ones, and by the consolidation of several large companies into a yet more powerful corporation. Before taking up the question of rates, it will be well to study the ocean line conferences, pools and agreements which have been organized in nearly all parts of the maritime world.

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CHAPTER XIX

RATE AND TRAFFIC AGREEMENTS, POOLS AND CONFERENCES OF OCEAN CARRIERS

Agreements in chartered ocean service, 286. Prevalence of ocean line conferences, 288. Organization of line conferences, 289. Types of line rate agreements, 291. Ocean line pools, 293. Other methods of controlling competition between conference lines, 296. Methods of controlling competition of non-conference lines, 298. Complaints against ocean conferences, 299. Advantages of ocean conferences, 300. References, 302.

THE differences between tramps and lines mentioned in the preceding chapters have a special bearing on the extent to which their rates and services are controlled by agreement. Although a measure of coöperation among chartered vessels has at various times been attempted, complete coöperation is difficult to attain. The vast number of vessels and their owners, the bulky character of the greater part of their cargoes, the relatively small investment required to engage in the tramp service, and the fact that they are not limited to particular routes or ports, have maintained a much greater degree of competition among chartered vessels than among lines. Indeed, the most disturbing element confronting the lines is the frequent competition between the line and tramp services.

CONFERENCE AGREEMENTS IN CHARTERED OCEAN SERVICES

The occasional agreements or conferences that have been arranged among the owners of tramp vessels have been limited in scope and have had no great effect upon charter rates. In 1904, for example, the Sailing Ship Owners' International

Union was organized for the object of fixing minimum rates of freight for the principal voyages in which sailing vessels are engaged in bringing freight to European ports from countries outside of Europe. A permanent committee was organized by the union to fix these freight rates from time to time for the various leading foreign ports. In joining the union each member promised to abide by all rates fixed by the union, and not to grant any rebates or commissions. He also agreed to let his ship lie by or sail in ballast if cargo could not be secured at union rates.

The scope and effect of this conference, however, were decidedly limited. It applied only to certain long voyages, such as those from the west coast of South and North America and the return voyages; only sailing vessels were included in the agreement; and these had to be relatively large vessels of an agreed minimum tonnage. The rates agreed upon, moreover, were merely a minimum, which was fixed largely with reference to the line of no profit.

There are also various steamship owners' associations, particularly in Great Britain, that have at times endeavored to control charter rates between certain of the larger ports, but have never exerted a widespread effect upon such charges. They are concerned mainly with obtaining favorable harbor regulations and shipping legislation; government protection against the shipping policies of foreign countries; improved charter parties; reduced coal-trimming charges; favorable tolls; protection against organized labor; or economical marine insurance.[1] In 1905 a number of vessel owners entered into an agreement applicable to the rate on lumber from Norway, Sweden and Russia to Great Britain, Germany, Holland, Belgium and France; but the main work of the organization has been in building up a uniform charter party and in providing rules governing matters such as lumber measurement, loading, discharging and insurance.

At times certain ship operators have complained of agreements making it difficult for them to charter vessels for use

[1] J. R. Smith, *The Ocean Carrier*, 243.

in particular trades, such as the trade between Porto Rico and the United States.[1] No evidence has, however, been presented that any considerable number of such agreements have ever been in existence nor that their effect was general. The Porto Rican agreement was possible because the trade of the United States with that island is "coastwise" trade and is not open to the competition of foreign vessels.

Prevalence of Ocean Line Conferences

It is in the ocean line business that coöperation has displaced unrestricted competition. The number of lines is relatively small, their invested capital is relatively large, they usually operate over definite routes and at a limited number of ports, and much of their traffic consists of high-grade commodities, general cargo, express goods, mail and passengers, from the carriage of which the tramps are ordinarily excluded. Conferences, agreements and pools have become general in the ocean line traffic because their organization and maintenance are less difficult than in charter traffic, and because the competition between ocean lines, if unrestricted, is likely to become so intense and persistent that their successful and profitable management practically requires them to enter into arrangements regulating their interrelations. As was stated in the *Report on Steamship Agreements and Affiliations in the American Foreign and Domestic Trade,*[2] made by Professor S. S. Huebner to the House Committee on the Merchant Marine and Fisheries,

> as regards nearly every foreign trade route, practically all the established lines operating to and from American ports work in harmonious coöperation, either through written or oral agreements, conference arrangements, or gentlemen's understandings. The few

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations,* I, p. 701.

[2] *Proceedings in the Investigation of Shipping Combinations,* IV, p. 281.

instances where two or more lines serve the same route and have denied the existence of written or oral agreements for the regulation of the trade, are exceptions and not the rule.

A report on *Shipping Rings,* made in 1909 by a British Royal Commission, showed that line conferences and agreements are similarly almost universal in the international trade of foreign countries.

The European War has resulted in the disruption of some of the conferences and agreements specifically referred to in the above-mentioned government reports. Many, however, are doubtless in effect even during war conditions, and there is no likelihood that the war will permanently alter the need of the ocean lines to coöperate in the future.

Organization of Ocean Line Conferences

The organizations through which the lines administer their agreements, pools or understandings are known as "conferences." They may be informal gatherings or intermittent, irregular meetings, at which rates, sailings or other matters of mutual interest are arranged. There may be nothing but an informal understanding that the traffic officials of one line will consult those of another whenever any rate changes are contemplated, or that a weaker line will follow the rates established by a stronger line. Conferences may, however, be formal organizations with permanent officers, committees, regular or special meetings, rules, and penalties. The Mediterranean Westbound Freight Traffic Agreement, for example, is administered by a general secretary and an assistant secretary, a board of arbitrators, and a convention or committee of line delegates.

The general duties and powers of the secretary and assistant secretary of the Mediterranean Conference are [1]

[1] W. H. S. Stevens, "The Administration and Enforcement of Steamship Conferences and Agreements," in *The Annals of the American Academy of Political and Social Science,* September, 1914, p. 136.

1. To receive the statistical statements and manifests, and to examine them and the accounts, for which purpose they have access to the freight offices of the lines and of the agents, where they may examine books, manifests, correspondence, etc.
2. To communicate the statistics and accounts to the lines and act as mediator in general in the transactions between the lines.
3. To control the freight rates, commissions, and rebates, and to see that the lines receive regularly and at the same time all necessary statements.
4. To collect the payment of penalties and effect compensation accounts.
5. To call meetings of the lines and to keep minutes of such meetings.
6. To use every exertion to settle difficulties between the lines in an amicable fashion.

The board of three arbitrators is empowered to settle any disputes that may arise among members. It is appointed each time a dispute arises upon appeal of the parties involved; one arbitrator is appointed by each disputant, and these in turn select as umpire one of three persons named in the Mediterranean Westbound Freight Traffic Agreement. Should either party fail to appoint an arbitrator within 14 days after notice is given by the general secretary, the one appointed by the other party shall have full power to proceed with the case. The conference delegates of the lines have supreme legislative powers. They meet at regular or special meetings called by the General Secretary to make the underlying agreements or the arrangements that bind the conference lines. The expenses incurred are divided equally between the two groups of lines that are members of the conference.[1] Many of the formal ocean conferences do not have the elaborate administrative

[1] The Mediterranean Westbound Freight Traffic Agreement was entered into by two groups of lines: (1) The six Italian lines—the Navigazione Generale Italiana, Italia, Veloce, Lloyd Italiano, Lloyd Sabaudo, and Sicula Americana; and (2) four British and German lines—the Anchor, Hamburg-American, North German Lloyd, and White Star.

machinery and rules of the Mediterranean Conference, but nevertheless have a definite organization.

In order to guarantee good faith each member of a conference is in many instances required to deposit a stipulated sum, to be forfeited in case it in any way assists a non-conference line, or itself establishes a new service that will interfere with the conference lines. It is also a common conference rule that new lines may not be admitted to membership except by unanimous consent. Different conference lines may, moreover, be interrelated by specific agreement, or a group of conference lines may enter into an agreement with a line that is not a member of their conference. The N. D. L. V. lines have a passenger agreement[1] "L" with the American Line and the Compagnie Générale Transatlantique, and other sub-agreements, known as agreements "G," "J," and "N," as is shown in the accompanying diagram. The subsidiary agreements of the Mediterranean Conference lines listed in the diagram are further examples of such interrelationship.

The conference agreements and arrangements of the ocean lines differ greatly in their details, but the unmistakable purpose of all is the control of competition. They may, therefore, be divided into two groups: (1) those designed to control the competition between conference lines, and (2) those aiming to control or combat the competition of non-conference ocean carriers.

Types of Ocean Line Rate Agreements

The competition between conference lines is frequently subjected to the restricting influences of fixed, minimum or differential agreements. A fixed rate agreement is one that specifies the actual or absolute freight rate or passenger fare that is charged by a certain group of conference lines, all charges to be subject to the mutual consent of all members. Such, for example, is the practice under the Mediterranean Westbound

[1] The N. D. L. V. conference (Nord-Atlantischer Dampfer Linien Verband) includes the Hamburg-American, North German Lloyd Line, Wilson Line, and the Scandinavian-American Line.

Traffic Agreement referred to above. All the lines, with the exception of the Fabre Line, engaged in the westbound freight traffic between Italy and the United States, agreed to charge the established rates subject to the steamship agency commission as prescribed in the agreement and to deferred rebates not exceeding 10 per cent of the freight paid by shippers who agree to ship exclusively via the conference lines. Fixed freight rates are also established in the so-called "Baltic Pool" agreement, to which the four lines engaged in the trade between Baltic ports and the North Atlantic ports of the United States were parties before the European War broke out.[1] The N. D. L. V. Westbound Freight Agreement, fixing the freight rates from the ports of the north German seaboard, Holland and Belgium to the ports of the United States, also prescribed fixed rates for general cargo, although certain heavy commodities could be carried at rates not below a prescribed minimum. Fixed rates are likewise prescribed in the agreements or understandings that govern the lines operating from New York to Australia, from New York to South, East and West Africa, from New York to Asia via Suez and return, from New York to most South American ports and return, and from Asia to the Pacific coast ports of the United States.[2]

Minimum rate agreements are more numerous than fixed rate agreements, particularly in the freight and passenger business of the North Atlantic route. The numerous North Atlantic passenger conferences (charted in diagram opposite page 290) that governed the passenger business before the outbreak of the war in Europe established minimum first- and second-class fares for each conference steamer, and a general minimum rate for steerage traffic. The steerage traffic was pooled, however, and any lines that obtained more than their allotment of steerage passengers were required to advance their

[1] The Hamburg-American Line, North German Lloyd Line, Wilson Line, and Scandinavian-American Line.

[2] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations*, IV, p. 282.

steerage rates regardless of the prescribed minimum, so as to divert traffic to the short-tonnage lines. In the

eastbound and westbound freight traffic between American North Atlantic ports and the United Kingdom, and in the eastbound trade from New York to Mediterranean ports, the lines are also governed by minimum rate agreements. The lines meet in conference and notify each other of their minimum rates upon a large selected list of articles, the rates thus filed being subject to change only after an agreed period of notice varying from 30 to 60 days. The lines agree not to take freight (certain bulk articles being excepted) below the agreed minimum rates, but any line can serve notice that at the end of the designated period it will change these rates.[1]

The various North Atlantic-European freight rate agreements are charted in the accompanying diagram.

When the service of particular lines is indirect or slower than that of others serving the same ports, the conference lines sometimes agree upon differential rates so as to enable the former to obtain a fair share of available traffic. Some of the North Atlantic passenger agreements, for example, provide for differential fares for first- and second-class passengers carried on certain steamers; and the Royal Dutch West India Mail Line is permitted to charge freight rates 5 or 10 per cent under those of the Red "D" Line on freight shipments between New York and Venezuelan ports.

Ocean Line Pools

Many ocean lines go further than to agree upon their rates. Some of them enter into "pooling" arrangements so as to destroy the incentive of any of the conference lines to undercut the agreed rates. The conference agreements may provide either for a traffic pool or a money pool, although in practice the two are so closely allied that the one merges into the other. Their purpose in either case is to guarantee that each confer-

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations,* IV, p. 282.

ence line will obtain a fair share of all freight or passenger moneys included in the agreement, and that each will carry a fair amount of traffic. The North Atlantic passenger line conferences operate typical traffic pools. In the N. D. L. V. agreement of 1892, for example, it was provided that the total number of steerage passengers carried from European ports north of Cadiz or from British ports to or via the United States and Canada shall be divided according to the following percentages:

The North German Lloyd Line, 39.7 per cent.
The Hamburg-American Line, 24.8 per cent.
The Red Star Line, 13.5 per cent.
The Holland-America Line, 8 per cent.
For the British lines, 14 per cent.

In 1909, when the agreement was renewed, the proportions of the four N. D. L. V. lines were changed so that the westbound steerage passengers carried by them were divided as follows:

The North German Lloyd Line, 42.46 per cent.
The Hamburg-American Line, 31.38 per cent.
The Red Star Line, 15.55 per cent.
The Holland-America Line, 10.61 per cent.

This traffic agreement required each line to render statements of the number of passengers carried and the amount of tonnage employed three times each month to the secretary of the conference, who then prepared monthly accounts showing the position of each line. If the tonnage employed by a given line was increased the line was entitled to a stipulated increase per 1,000 tons in the number of steerage passengers carried, and if its tonnage declined, its allotted share similarly decreased. If the number of steerage passengers actually carried by a line was above or below its allotted percentage of total steerage business, it could, upon notification of the secretary, take measures to bring about a correct adjustment; and if at

the end of any year the annual steerage traffic of a given line exceeded its proportion it was required to pay to the lines that did not reach their allotted quota an agreed amount or so-called "compensation price" per excess steerage passenger.

Most steamship line pools, however, are essentially money pools. A money pool may include merely the freight resulting from a single commodity or classification of articles, as in the case of the "Baltic Pool," previously mentioned, in which the freight received from certain commodities carried between the Baltic ports and the American ports of the North Atlantic are distributed in accordance with agreed percentages. The total freight moneys of certain conference lines may, however, be pooled, as was done under the N. D. L. V. westbound freight agreement. A more common arrangement, especially in long-distance trade, is to pool the net freight revenues resulting from the carriage of all freight cargoes, i. e., certain expenses incurred in the operation of the steamers, transshipment costs, stevedores' wages, agency commissions, etc., are deducted from gross freights and only the remainder is divided among the conference lines according to agreed proportions.

Examples of such pools are the Mediterranean westbound freight pool, mentioned above, the Calcutta-Pacific Pool,[1] applicable to freight shipped from Calcutta to American Pacific coast ports, and the American Asiatic pools,[2] applicable to the eastbound and westbound freight shipments between the Far East and the Atlantic ports of the United States via the Suez Canal. The specific deductions made in order to arrive at net freight vary in the different pooling agreements. In some pooling agreements, moreover, only a portion of the freight

[1] Bank Line, Canadian Pacific Railway Company's Steamship Line, China Mutual Steam Navigation Company, Great Northern Steamship Company, Ocean Steamship Company, Nippon Yusen Kaisha, Osaka Shosen Kaisha, Toyo Kisen Kaisha, Pacific Mail Steamship Company, Indo-China Steam Navigation Company, and the Apcar Line.

[2] American and Oriental Line, Barber and Dodwell Lines, United States and China-Japan Steamship Company, American-Asiatic Steamship Company, Anglo-American Oil Company, and American and Manchurian Steamship Line.

money is pooled. The Hamburg-American and the Royal Mail lines pooled 50 per cent of their earnings (except those derived from certain special commodities) in the trade between New York and Jamaica, Colon and Colombian ports; and the conference lines [1] in the New York-West African trades pooled 75 per cent of both their freight and passenger receipts.

The percentages agreed upon are usually allotted to the individual lines of a conference, but they may be allotted to groups of lines. In the New York-West African pool the money is divided equally between two groups, comprising the British and German conference lines, respectively; and in the Mediterranean westbound freight pool there is an equal division between a group of Italian lines and another group of British and German lines.

Some pools are traffic pools as well as money pools, "the lines aiming to divide both the volume of freight and the freight money in the same percentage for both." [2] In the "Baltic Pool," for example, each of the four conference lines was obliged to carry a volume of freight no greater than the percentage of revenue allotted to it; if it over-carried, it would, at the end of each period of six months, pay the difference to the under-carried lines in cash. When necessary, a flow of traffic from one line to another was forced by readjusting their rates until the full percentages were secured.

Other Methods of Controlling Competition Between Conference Lines

The traffic pool, which is really a method of apportioning traffic between conference lines, differs somewhat from a traffic agreement which limits the volume of freight that certain lines may carry. The White Star Line, which operates an

[1] Woermann Line, Hamburg-American Line, Hamburg-Bremen-African Line, African Steamship Company, British and African Steam Navigation Company, Elder Line, and Elder, Dempster & Co.

[2] W. G. Sickel, "Pooling Agreements," in *The Annals of the American Academy of Political and Social Science*, p. 149, September, 1914.

indirect service from New York to Australian ports by way of Liverpool, for example, has an oral understanding with the through direct lines [1] that it will not carry more than one-quarter of the total measurement cargo carried to Australia by the four lines combined. The White Star Line does not, however, pool its traffic or earnings with the direct lines, nor is it hindered in the quotation of its rates.

The traffic of conference lines is frequently apportioned in a measure by agreements restricting the number of sailings of each line. In the American-Brazilian trade, for example, before the outbreak of the European War, the Lamport and Holt Line, the Prince Line and the joint service of the Hamburg-American and Hamburg-South American lines were each allowed 24 sailings per year from New York; and the sailings from Brazil of the Lamport and Holt Line were unrestricted, while those of the Prince Line were limited to 24 sailings to New York and 12 to New Orleans. The German lines were limited to 24 sailings to New York per annum, and they agreed to withdraw entirely from the Brazil-New Orleans trade. The previously mentioned New York-Orient agreement of the lines operating via the Suez Canal also limits the sailings of the conference lines, and provides for mutual arrangements as to the order in which their vessels may take the berth.

A variation from this method of apportioning traffic is followed by the direct lines in the trade from New York to Australia. Their agreement stipulates the vessel tonnage that each line may provide. The American and Australian S.S. Line is allotted 42½ per cent of the tonnage, the United Tyser Line 35 per cent, and the United States and Australasia S.S. Co. 22½ per cent. In the outbound trade from the United States to South and East Africa the conference lines similarly agreed that the Union Castle Line may provide two-sevenths of the tonnage, and the Bucknall S.S. Line, the Clan Line, the Hansa Line, the Houston Line, the Prince Line, one-seventh each.

[1] American and Australian Steamship Line, United Tyser Line, and United States and Australasia Steamship Company.

The traffic may, moreover, be apportioned by allotting the ports of sailings. Thus the Hamburg-American and North German Lloyd lines in the trade from all American ports north of Savannah allot to each other respectively the ports of Hamburg and Bremen. The N. D. L. V. conference similarly reserves certain European ports to each of its four members. The New York and Cuba Mail Line and the Compañia Maritima Cubana have apportioned Cuban ports in the Cuba-New York trade; the Royal Mail Line, in its agreement with the Hamburg-American Line, agreed not to extend its American service to Santo Marto and the ports of Haiti; and the Russian East Asiatic Line agrees to confine its American trade to Russian ports when possible, and to maintain the rates of the Holland-America Line in case it is obliged to call at Rotterdam.[1]

Methods of Controlling Competition of Non-Conference Lines

One of the most effective measures taken by some of the conference lines to protect themselves against the competition of outside, non-conference lines is the deferred rebate system. Shippers are promised a rebate of 5 or 10 per cent of their freight payments at the end of designated periods of three, six or twelve months, provided that meanwhile they have given their exclusive support to the conference lines. The system is now illegal under the Shipping Act of September, 1916, so far as the trade of the United States is concerned, but was especially common in the long-distance trades, such as the trade at South American and Oriental ports. Deferred rebates may be paid even by lines that are not members of a conference.

The use of "fighting ships," or collective competition, has also been utilized as a means of protection. There have been instances where, in order to destroy the competition of non-

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations*, IV, p. 284.

conference lines, certain steamers were set aside to undercut the rates of outside lines and to sail on the same days and between exactly the same ports. Sometimes a separate company was incorporated to operate the fighting ships, the future use of which in the American trade is also prohibited by the Shipping Act of September, 1916.

Conference lines, either individually or as a group, may also make contracts with shippers, whereby in return for reduced rates and an agreed service the shippers agree to dispatch via the conference lines their entire shipments to certain ports during agreed periods. The privilege of securing such contracts is usually open to all shippers alike, but has at times been a source of discrimination. Contracts have been made with large shippers for all or a part of their freight at lower rates than those quoted on smaller quantities of similar commodities. The Shipping Act, however, prohibits unfair discriminations in the future. Numerous preferential or exclusive agreements, as will be explained in the following chapter, have also been made with various American railroads.

Complaints Against Conferences

The conferences, agreements and understandings of ocean lines have sometimes been complained of on the grounds that their monopolistic power, even though not always complete, is liable to abuse. They have at times prevented the establishment of new lines and crushed non-conference lines; or they may have exerted a certain degree of arbitrary power over rates, dominated shippers, been indifferent as to the landing of freight in proper condition and slow to settle claims. They have sometimes granted special rates and accommodations to large shippers, and refused to publish tariffs and classifications. Their secrecy, the questionable practice of paying deferred rebates, and their occasional operation of fighting ships have especially been sources of complaint. There is nothing inherent in the complaints mentioned that cannot be remedied by proper remedial legislation. Indeed, the most objectionable

features of ocean conferences and agreements have been prohibited by the Shipping Act of September, 1916, and their entire administration has been subjected to supervision by the United States Shipping Board.[1] The advantages of ocean conferences and agreements both to the lines and to the shippers need not be sacrificed in order to eliminate their disadvantages.

Advantages of Conferences

Arbitrary rate discrimination by ocean conferences is the exception. For every such instance there are many in which the conferences, by controlling unrestricted competition, have made the rates to all shippers at a given port more uniform. For every arbitrary discrimination between countries there are many instances in which conferences have maintained the rates from the United States to foreign markets on a parity with those from other countries. The arbitrary increase of rates by conferences is, likewise, exceptional, because they cannot ordinarily disregard the competitive forces mentioned in the preceding chapter. All such arbitrary action could be further restricted by government supervision. It should be remembered that there is no more prolific cause of discrimination than unrestricted competition.

Ocean conferences, moreover, benefit both the conference lines and the shippers by stabilizing rates. The merchant engaged in international trade desires an adequate service at rates that are reasonable and fairly stable; fluctuating rates seriously interfere with trade, whether it be domestic or international. Sudden and large changes, often characteristic of ocean rates, may interfere with the development of commerce as seriously as the unstable competitive rates by rail in the United States have in times past hampered the industrial development of different sections of the country. Reasonable stability of rates reduces the speculative uncertainty of shipping, it facilitates the calculation of net prices, it reduces the

[1] *See* chap. xxv.

complaints of foreign customers, steadies the flow of international trade, and makes it possible for both shippers and carriers to enter more readily into forward contracts for the carriage of freight.

The chief benefit of ocean conferences to shippers, however, is in the improved service which they make possible. Conferences reduce the cost of the line service, and while this increases the profits of the line, it also makes possible a lower level of rates and a higher standard of service. For every instance of indifference to the welfare of shippers, there are many in which ocean conferences have promoted regularity of service, a better distribution of sailings, and ultimately the operation of more and better vessels than the lines would have dared to provide if interline rate competition were absolutely unrestricted. The instances in which conferences have prevented a new line from entering a trade or have crushed a non-conference line should be balanced against the large number of weaker conference lines which would probably be crushed or would suffer severely if they engaged in uncontrolled competition with their stronger fellow members. Against the scattering instances where conferences may have discriminated unfairly against certain ports should be balanced their ability to distribute their cost of service more economically so as to increase the number of sailings at the smaller ports where competitive services would be unprofitable. On well-established trade routes where the flow of traffic is heavy in volume it should, moreover, be borne in mind that most of the conferences have to do almost entirely with rates and earnings. Nowhere in the world has such progress in ship construction and service improvement been made as in the North Atlantic passenger business, and yet the great lines that compete so keenly as regards the kind of service rendered are parties to rate agreements and pooling arrangements. Conference control over rate competition so enhances the security of the capital invested in these ocean lines as to render it easier for them constantly to improve their facilities and yield to the demands of the traveling public.

These benefits to the shipper and the ocean traveler may, however, in individual instances, be largely nullified by the steamship conferences, if they follow a policy of restricting the development of the service, and a policy of high rates and small volume of business instead of low rates and maximum traffic. Instances are not wanting of arbitrary action on the part of the steamship organizations to prevent outside lines from interfering with the established traffic of the associated companies, or to become members of their conferences, and shippers have sometimes been penalized for patronizing lines not belonging to the combination. The tendency of those possessing exclusive privileges is to seek vigorously to retain such privileges against outside interference; accordingly, it is clear that conferences among ocean carriers, which seem to be rendered necessary by the severity of unrestricted competition, should be carefully supervised and regulated by governmental authority, as is required by the Shipping Act of September, 1916.[1]

[1] *See* chap. xxv.

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CHAPTER XX

COÖPERATION AND COMBINATION OF OCEAN AND RAIL CARRIERS

Railroad ownership and control of vessels in foreign trade, 303. Contrast between foreign and domestic trade, 304. Railroad ownership and control in domestic trade, 307. Sherman Antitrust Act, 307. Panama Canal Act, 307. Indirect railroad control, 309. Coöperation otherwise than by ownership or control, 309. Preferential contracts, 310. Through bills of lading, 311. Through freight rates, 311. Railroad facilities at terminals, 312. Foreign trade regulations of railroads, 312. Foreign freight agents, 312. References, 313.

MUCH of the traffic handled by ocean carriers originates at or is destined to points located inland or at coastwise points not reached by ocean vessels. The ocean, coastwise, inland water and rail carriers which transship such cargoes at the seaboard come into close business relationship, and together constitute the country's export and import transportation system. Their tendency, too, as is the case among the ocean steamship lines in their dealings with each other, has at many points been to coöperate. The topics to be considered in discussing the coöperation and combination of ocean and rail carriers are: (1) the ownership or control of ocean carriers by the railroads, and (2) the coöperation of ocean and rail carriers otherwise than by ownership or control.

RAILROAD OWNERSHIP AND CONTROL IN THE FOREIGN TRADE

In a statistical report issued April 11, 1916 (39 *I. C. C. Reps.*, 5), the Interstate Commerce Commission stated that on June 30, 1914, the railroads of the United States, including the Canadian Pacific and the Grand Trunk Railway of Canada in so far as they operate at ports of the United States, owned

or controlled 1,098 vessels having a gross tonnage of 2,941,941 tons. Of these, 672 vessels of 1,057,975 tons gross were controlled through direct ownership or intercorporate relationship, and 426 of 1,883,966 tons gross through interlocking stock ownership, directorates or officers. The control in case of the latter vessels was not in all instances complete, but was sufficient to establish a community of interest. These figures, moreover, do not include vessels engaged solely in the transportation of passengers, nor craft engaged in local harbor services.

TABLE 14.—TOTAL VESSEL TONNAGE CONTROLLED BY RAILROADS, 1914

IN COMMUNITY OF INTEREST WITH RAILROADS THROUGH—	STEAM VESSELS		SAILING VESSELS AND BARGES		TOTAL OF VESSELS	
	No.	Gross tonnage	No.	Gross tonnage	No.	Gross tonnage
Intercorporate relationship	388	855,530	284	202,445	672	1,057,975
Interlocking stocks, directorates, or officers	382	1,859,796	44	24,170	426	1,883,966
Total	770	2,715,326	328	226,615	1,098[1]	2,941,941

[1] Includes vessels owned but not operated on June 30, 1914.

A sharp distinction needs to be made between the foreign and domestic trades in relation to railroad ownership and control. Its importance and extent in the foreign trade are relatively small. Of the 1,057,975 tons gross owned or controlled directly by railroad companies or through intercorporate relationship, but 38 vessels having a gross tonnage of 172,681 were engaged in the foreign trade of the United States. This ownership or control, moreover, as is shown in Table 15, is confined largely to the nearby foreign trade with Canadian, Cuban and Mexican ports. The principal railroads operating vessels to these regions are the Atlantic Coast Line, the New York, New Haven & Hartford, the Pere Marquette, Southern Pacific, Canadian Pacific, and Grand Trunk.

The railroad-owned tonnage in the Oriental trade of the Pacific coast of the United States on June 30, 1914, amounted

TABLE 15.—RAILROAD TONNAGE IN THE FOREIGN TRADE, 1914

ROUTES TRAVERSED	STEAM VESSELS	
	Number	Gross tonnage
Atlantic and Gulf coasts:		
To Canadian ports	3	10,174
To Cuban ports	6	11,349
To European ports	2	8,270
Pacific Coast:		
To Canadian ports	4	11,947
To Mexican ports [1]	9	25,972
To Oriental ports	8	85,861
Great Lakes:		
To Canadian ports	6	19,108
Total	38	172,681

[1] Also to Balboa, Panama.

to 85,861 tons gross, and was operated by subsidiaries of the Southern Pacific and Great Northern railroads. Five of the vessels in the Oriental services of the Pacific Mail Steamship Company, which was the main Pacific coast steamship subsidiary of the Southern Pacific Company, were sold to the Toyo Kisen Kaisha in 1915, and the railroad sold its control of the Pacific Mail to W. R. Grace and Co. in 1916. The Great Northern Steamship Company, moreover, discontinued its Oriental services to and from American ports in 1917 and sold its largest vessel, the *Minnesota,* to the Atlantic Transport Company.

The commission listed but two railroad-owned tramp vessels in the foreign trade between the United States and Europe. The Chesapeake and Ohio at one time operated a line from Newport News to London and Liverpool; the Reading Railway from Philadelphia to London and Avonmouth; and the Pennsylvania Railroad once controlled the American Line; but at present the ocean carriers engaged in the transatlantic foreign trade are practically free from direct or intercorporate control by American railroads. The reasons for this are both historical and economic. The ocean transportation service across the north Atlantic was well organized and highly developed long before the railroads began to carry a large volume of traffic for export. As the railroads have increased

this traffic they, in the main, made use of previously existing ocean carriers, who have developed their facilities with the growth of the tonnage turned over to them by the railroads. Moreover, the tonnage of the north Atlantic traffic is so large, and the variety of commodities handled is normally so great, that ocean transportation facilities, independent of the railroads, are readily provided.

The trade of a great port like New York, for example, reaches out to all parts of the world, and includes not only the commerce of the large foreign ports with which there is a heavy and regular volume of trade, but also the smaller and more out-of-the-way foreign sources of this country's international trade. To handle such a commerce as New York City has, special ocean carriers are necessary; there is need not only for a few large steamship lines, such as the railroad interests might provide, but also of the services of smaller lines and independent vessels. This fact, together with the historical reason just given, explains why the vast foreign trade of New York is handled by carriers independent of the great railway systems of the United States.

The relatively small tonnage in the foreign trade owned or controlled directly or through subsidiaries represents the extent to which such tonnage is definitely controlled by the railroads of the United States. Mention should, however, be made of the important European and Oriental services to and from Canadian ports conducted by the Canadian Pacific Railway Company; and of the less definite community of interest which has been established between various American railroads and ocean carriers engaged in the foreign trade. A community of interest with railroads through interlocking stock ownership, directors or officers is reported in case of the American-Asiatic Steamship Co., the New York & Cuba Mail Steamship Co. (Ward Line), New York & Porto Rico Steamship Co., the International Mercantile Marine Co., the New York & Pacific Steamship Co. (Merchants Line), and various smaller ocean lines.[1]

[1] 39 *I. C. C. Reps.*, 69-71, April 11, 1916.

Railroad Ownership and Control in the Domestic Trade

The ownership of coastwise tonnage by American railroads is very much more extensive than the ownership of vessels engaged in the foreign trade. Not only have some of the railroads entered the field of vessel operation in order to reach points not served by their railroads, but the desire to control water competition has, in many instances, been an additional motive. Railroad ownership or control of competitive carriers by water has, however, in recent years been somewhat restricted. The Sherman Anti-Trust Act of 1890 has been applied to the New York, New Haven and Hartford Railroad, which has been one of the principal owners of coastwise tonnage, and the prohibitive clause (section eleven) of the Panama Canal Act of 1912 has been applied in this and numerous other instances. This latter act provides (1) that railroad owned or controlled vessels which are or might be in competition with the proprietary railroad may not navigate the Panama Canal; and (2) that railroads may not own or control any carriers by water which are or might be competitive with their railroad owners unless the Interstate Commerce Commission is convinced that the carriers so owned or controlled are "being operated in the interest of the public" and are "of advantage to the convenience and commerce of the people," and that their ownership or control by railroads "will neither exclude, prevent, nor reduce competition on the route by water under consideration."

According to Tables 14 and 15, the railroads on June 30, 1914, directly or through subsidiary companies owned or controlled 634 vessels—barges as well as steamers—having a gross tonnage of 885,294 tons in the domestic trade of the United States. This comprised less than 13 per cent of the entire documented coastwise tonnage of the United States. In addition to the tonnage which they definitely owned or controlled, the railroads were, however, affiliated with various carriers by water through interlocking stock ownership, direc-

torates or officers. The Committee on the Merchant Marine and Fisheries of the House of Representatives in 1914 also reported that the railroads then owned or controlled 209 vessels of 589,561 tons gross, engaged exclusively in the regular line traffic, and that this amounted to 49.9 per cent of the entire regular line tonnage engaged in the domestic trade of the United States. The railroad-owned tonnage on the Pacific coast amounted to 19.8 per cent of the total regular line tonnage employed; on the Atlantic and Gulf coasts, 61.9 per cent; and on the Great Lakes, 64.2 per cent.[1] Thirty-two per cent of the regular line tonnage on the Atlantic and Gulf seaboard, moreover, is owned or controlled by two great coastwise consolidations—the Atlantic, Gulf and West Indies Steamship Lines[2] and the Eastern Steamship Corporation—which in turn are affiliated with railroads by community of interest.

Railroad-owned vessel tonnage has been reduced since 1914 because of the application of the statutes mentioned above. The New Haven consolidation has been disrupted. The railroads have disposed of their lake lines, mainly to a newly organized corporation known as the Great Lakes Transit Company. The Pacific Mail Steamship Company was barred from the coastwise trade via the Panama Canal by the Act of 1912, and later the Southern Pacific Railroad transferred the control of the company to W. R. Grace and Company. The canal act has also been applied against some of the railroad-owned lines operating on Chesapeake Bay, and against various lines in different parts of the country. The legal right of the railroads to continue their ownership of carriers by water depends in each instance on the effect of such ownership upon competition and upon the public good as viewed by the Interstate Commerce Commission.

A degree of control by railroads has at times been exercised

[1] House Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations*, IV, p. 404.

[2] New York and Cuba Mail, New York and Porto Rico Steamship Company, Clyde Line, Ward Line, and Southern Steamship Company.

over carriers by water otherwise than by direct or indirect ownership of vessels or by community of interest through interlocking directors, stock ownership or officers. Particularly has this been the case in the domestic trade. Such indirect methods of control include the ownership by railroads of needed water frontage and terminal properties; the ownership or long-term lease of canals; the control of canal forwarding companies; the mutual membership of rail and steamship lines in traffic associations; the establishment of through rates and routes and the issuance of through bills of lading via favored steamship lines; the chartering of space from competing water lines; the failure to connect rail and water lines physically; the narrowing of the differential between all-rail and rail-water routes; the granting of in-transit privileges on all-rail routes; and the reduction of rail charges at points subject to independent water competition.

The indirect methods of controlling carriers by water have gradually become less prevalent since the scope of the Interstate Commerce Act was enlarged in 1906, 1910 and 1912, and a further restriction of their use may result from an application of the Shipping Act of 1916. The application of these statutes to the relationship between railroad and water carriers will be discussed in Chapter XXV.

Coöperation Otherwise than by Ownership or Control

Although the relationship through ownership or control between railroads and ocean carriers engaged in the foreign trade is relatively limited in scope, it should not be overlooked that a measure of coöperation is obtained at many ports through ocean-rail traffic agreements or preferential contracts. New York, New Orleans and Galveston are termed "open ports" in the sense that the railroads and ocean carriers serving them apparently are not parties to such contracts. Thirty-two preferential contracts or arrangements covering nearly all the other ocean ports of the United States, however, were

reported to the Congressional committee referred to above, and others may have been overlooked.[1]

Prior to the decision of the Interstate Commerce Commission rendered on May 7, 1912, many of the agreements were mutually "exclusive." Thereafter some of them were modified so as to make them mutually "preferential" rather than exclusive, the Commission having decided that although under the Interstate Commerce Act, as amended in 1906 and 1910, a railroad may reserve wharves for its own use and for preferred ocean carriers, it must at the same time afford the public access to equal facilities elsewhere at equal rates, and that the issue of through bills of lading on export traffic via a favored ocean line obliges the railroad to issue such bills via other lines serving a given port, subject to reasonable regulations.[2] Moreover, on August 24, 1912, Congress in enacting the Panama Canal Act definitely provided that

> If any rail carrier subject to the Act to regulate commerce enters into arrangements with any water carrier operating from a port in the United States to a foreign country, through the Panama Canal or otherwise, for the handling of through business between interior points of the United States and such foreign country, the Interstate Commerce Commission may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country.

The preferential rail-ocean contracts variously provide that (1) the steamship company's vessels will load and discharge at designated railway-owned wharves; (2) the railroad will provide proper wharfage facilities free of charge; and (3) both parties will "use their best efforts to promote the interchange of business tributary to both companies as against their individual and mutual competitors," or will not encourage any other services than those of the interested com-

[1] Committee on the Merchant Marine and Fisheries, *Proceedings in the Investigation of Shipping Combinations,* IV, chap. ix, p. 238.

[2] *Mobile Chamber of Commerce et al.* vs. *Mobile & Ohio R. R. Co. et al.,* 23 I. C. C. Reps., 417, May 7, 1912.

panies during the life of the contract. Each party agrees to give preference to the other in "so far as it lawfully may, or unless compelled by legislative enactment, or order of the Commission, or judicial decree to do otherwise." [1] Some contracts also contain clauses regarding the protection of freight rates on competitive traffic as against other lines or ports; the number of vessels to be operated; and other matters of mutual interest.

Railroads and ocean carriers also coöperate in the issuance of through bills of lading, thereby relieving interior shippers, who desire so to bill their foreign consignments, from the need of engaging special port representatives or personally attending to the transshipment of, and the formalities connected with, their cargoes at the ports of export and import. As was stated in Chapter XII, however, many interior shippers prefer to forward their foreign shipments on rail and ocean bills of lading.

There have, moreover, been instances in which the rail and ocean carriers quoted joint or through freight rates to and from foreign countries. Until after 1890, for example, many American railroads took a percentage of fluctuating through import rates from Europe to inland destinations. Since then the practice of quoting through rail-ocean rates has declined, because of the fluctuating character of ocean rates, and especially because the Hepburn amendment of 1906 to the Interstate Commerce Act obliges American railroads to publish and file their rail rates on imports and exports as well as on domestic traffic and to give a notice of 30 days in case changes are contemplated. These legal requirements have made it impossible for railroad rates to be a percentage of constantly fluctuating through rail-ocean charges. Through rates to various Mexican ports via steamship lines operating from Port Arthur, New Orleans and Texas City, however, are still quoted by various railroads. Until July 1, 1916, various transcontinental railroads also quoted through rates

[1] *Proceedings in the Investigation of Shipping Combinations,* IV, chap. ix, p. 252.

to specified Oriental and Australian ports via Pacific coast ports. Those quoted in the export tariffs of the Trans-Continental Freight Bureau, however, were quoted "for information only," the ocean proportions not being guaranteed; and other tariffs instructed agents not to contract for through transportation until after specific reservation of space had been effected. At present it is mainly in the domestic trade that through rail-water rates continue to be quoted over rail-coastwise or rail-lake routes.[1]

Combined rail and ocean rates on foreign shipments are made mainly by combination of current ocean rates with legally collectible railroad rates. The latter are either the regular domestic rail rates or special export or import rail rates applicable to and from shipside.[2]

The railroads further coöperate with the ocean carriers in handling the foreign trade by providing special facilities at the terminals, where rail connections have been established at many ports so as to reduce transfer expenses, and where the railroads provide numerous car ferries and floats and some of the needed freight lighters and barges, floating and stationary grain elevators, wharves, warehouses, car yards, coal terminals, and freight-handling appliances. Their special foreign trade regulations include modified demurrage rules which grant a longer period of free time before railroad demurrage begins to accrue than is granted to domestic freight; sometimes also special consideration in the storage of imported or exported freight; and special shipping requirements in case inland freight is forwarded on through bills of lading.

The traffic department of many railroads includes a "foreign freight agent" who has charge of the solicitation of import and export traffic and is assisted by a special soliciting force. There may also be a "European freight agent," "South American agent" or other special agent. A beginning has been made in the development of foreign trade advisory bureaus designed to give expert advice to exporters and importers re-

[1] Johnson and Huebner, *Export Shipping*, chap. vi.

[2] *See* chap. xxii, pp. 328-331.

garding rates and routes, shipping rules and customs, shipping papers and foreign markets. The well-established co-operative rail-ocean plan for the through transportation of immigrants to interior destinations has already been described in Chapter XIII.

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CHAPTER XXI

PRINCIPLES OF OCEAN FREIGHT RATES

Ocean line freight rates, 314. Bases of quoting line rates, 314. Freight classifications, 314. Special commodity rates, 315. Freight tariffs, 315. Lack of stability, 316. Time contracts, 316. Factors influencing line rates, 317. What the traffic will bear, 317. Line competition, 317. Berth cargo rates, 318. Tramp competition, 318. Market or commercial competition, 319. Value of the commodity, 322. Value of service, 322. Supply and demand of tonnage and cargoes, 322. Cost of service, 323. Distance or length of voyage, 323. Primage, 324. Ocean charter rates, 324. Bases of quoting charter rates, 324. Charter rates contrasted with line rates, 325. References, 325.

THE distinction between line and chartered vessels that was noted in the discussion of ocean services and their management or control is likewise fundamental in a discussion of ocean charges. Line and charter rates are made differently, their bases are different, and the factors influencing them vary in some respects.

OCEAN LINE FREIGHT RATES

The freight rates charged by the regular ocean lines were for many years based upon the cargo ton, weight or measurement. Many line rates are still quoted in terms of the cargo ton, but the practice is no longer universal. Furthermore, some ocean lines have established freight classifications and quote different rates for a limited number of classes. Thus certain lines operating from New York to western South American, Central American and West India ports classify general cargo into from four to six classes and quote rates for each class and also for many special commodities. The rates are stated in terms of 100 lbs., cubic feet, running foot or M feet. Various lines operating between Cuba and the Gulf ports of the United States similarly classify freight and quote class and

commodity rates in a tariff issued through the Gulf Foreign Freight Committee. No general classification prevails in the north Atlantic trade, but the German lines, until the suspension of their services following the outbreak of the European War, published tariffs in which they divided freight shipped from Germany to the United States into six classes, and quoted class rates in terms of dollars per cubic meters.

The practice of quoting special commodity rates for different articles is more general among ocean lines than that of classification, and it, too, indicates the tendency to modify the old custom of basing line rates solely on weight or measurement tons. Rates per long ton of 2,240 lbs., metric tons of 2,204.62 tons and measurement ton of 40 cubic feet are being widely supplemented by special commodity rates based upon units of 100 lbs., or of bushels, barrels, cubic feet, cubic meters, M feet or other specified weight or quantities. The practice of the lines is not uniform.

The business organization for making the rates on regular line traffic is likewise not uniform. As was stated in Chapter XIX, line rates are sometimes fixed definitely by the terms of the conference agreements. Other conference arrangements result in the joint fixing of minimum rates above which the actual rates are variously established after consultation of steamship agents, or without such conference, but with an understanding that each conference line will be notified of all rate changes. In the case of foreign conference lines serving American ports the rate-making authority is in some instances vested in the agents located in the United States, and in others it is exercised by their foreign principals or both agents and principals participate.

Not all ocean lines regularly publish rate tariffs as do the railroads. The lines or groups mentioned above in connection with freight classification publish tariffs, and so also do some of the transpacific lines, and steamship agents at Baltimore, Newport News and New Orleans publish "rate cards" [1] which state the ocean rates to European ports. Aside from the Ger-

[1] B. O. Hough, *Ocean Trade and Traffic*, 130.

man lines, however, the north Atlantic ocean lines do not regularly publish rate tariffs, and an absence of published tariffs also characterizes the line traffic between New York and China, Japan, Australia, New Zealand, South Africa, Brazil and Argentina. As is stated by Mr. B. O. Hough regarding shipments to these countries: "Tariffs exist, but they are jealously kept back of the counters in steamship offices. Never are they allowed outside of these offices and a shipper is rarely permitted a glance at them." [1]

The rates of ocean lines are far less stable than those of railroad lines, and they contain more discriminations. Not only do most of the lines engaged in the foreign trade fail regularly to publish tariffs, but the tariffs of current rates used by steamship agents are not strictly adhered to. Rates may change at any time and different shippers may simultaneously have different rates quoted to them.

A minor portion of the freight handled as line traffic is taken at rates fixed by time contracts between large shippers and freight forwarders or carriers. The manager of a line of vessels is glad to secure freight in advance, because a steady volume of traffic, even at moderate rates, is ordinarily more profitable than a fluctuating tonnage at current rates. The manufacturer or exporter engaged largely in the foreign trade can carry on his business more advantageously if he has an advance guarantee of the shipping facilities his traffic will require week by week or month by month, and if he knows what freight rates he will have to pay to place his products upon the foreign market. The time contracts between shipper and carriers cover various periods—a month, a season, or a year—and stipulate that the carrier shall provide facilities for transporting a designated tonnage of the shipper's wares or products at such dates and at such rates as are named in the agreement.

Unfair discriminations in the foreign trade may become less frequent in the future because they are prohibited by the Shipping Act of September 7, 1916. Section 16 prohibits undue

[1] B. O. Hough, *Ocean Trade and Traffic*, 129.

discrimination between any particular persons, localities or kinds of traffic; and special rate reduction by false billing or other unfair device. Section 17 provides that "no common carrier by water in foreign commerce shall demand, charge or collect any rate, fare or charge which is unjustly discriminatory between shippers or ports, or unjustly prejudicial to exporters of the United States as compared with their foreign competitors." It also authorizes the Shipping Board to correct any rate, fare or charge in case of such unjust discrimination or prejudice. The act does not, however, specifically prohibit sharp fluctuations in the foreign trade, nor does it require the filing and publication of tariffs in such trade. The provisions of the act with respect to the rates of carriers engaged in interstate water transportation are more comprehensive and will be included in Chapter XXV.

It is obvious from what has been stated, that the making of ocean line rates is not a scientific process; line rates are not finely gauged in accordance with any fixed standard or mathematical calculation. They are in all ordinary times the result of a number of business influences or forces.

The prevalence of ocean conferences makes it clear that regular line rates are not the result of unrestricted competition. It is equally clear that the occasional arbitrary advance or maintenance of a rate does not comprise evidence that the conference lines have an absolute monopoly power over line rates. Many influences not fully controlled by ocean conferences need to be considered when the lines endeavor to fix their rates at "what the traffic will bear."

Some competition between conference steamship lines persists even though they coöperate in the making of their charges. The conferences control and restrict rather than eliminate competition. Even when the absolute rates are fixed in conference committee meetings, the effects of competition are not wholly avoided, for the wishes of the weak and strong conference lines need to be heeded. Their competition is verbal rather than physical. Its form is changed and its severity modified, but its life is not extinguished. On some routes, moreover,

certain independent lines continue to operate, although the competition maintained by them is limited.

A distinction needs to be made between the regular cargo rates of ocean lines and their so-called "berth cargo" rates. The berth cargo of lines consists mainly of commodities such as grain or case oil which line vessels regularly carry to fill surplus cargo spaces not taken up by traffic which they carry at regular line rates. Berth cargo rates are frequently reduced to a low level at large ports, such as New York, which are served by many regular lines. At times such cargoes are carried in lieu of ballast, and their rates are regarded as profitable so long as they yield anything over and above the immediate costs incurred in handling them. They are explicitly excluded, in many instances, from the commodities whose actual or minimum rates are fixed in conference; or are subjected to only a modified amount of control. The minimum rate agreements of the lines operating between the United States and the United Kingdom before the outbreak of the war in Europe, for example, did not cover grain, flour, oil cakes, cotton and similar heavy, bulky commodities. In regard to grain, the lines merely agreed not to accept more than specified quantities per vessel at less than three cents per bushel.

Although ocean liners and tramp vessels are mainly engaged in different services, the rates charged for the services of ocean lines are nevertheless influenced to some extent by tramp competition. The competition is particularly acute in the fixing of berth cargo rates, because the commodities carried by lines as berth cargoes are especially adapted to transportation in ship-load lots. At large ports, for example, where many lines congregate, the lines sometimes obtain most of the grain cargoes, but at rates that are in a large measure influenced by tramp competition.

The general cargo rates of the lines are less subject to tramp competition, but even they are not wholly free from its influence. Shippers of iron and steel manufacture, and other bulky goods that may be shipped either in ship-load lots or as

general cargo, frequently have a choice of services; and should the line rates on general cargo that is usually handled almost exclusively by the lines become unreasonable as compared with the cost of chartering vessels, tramp competition may at any time become an active factor. As is stated by Mr. P. A. S. Franklin, president of the International Mercantile Marine Company, the tramp service is under such conditions available both to small and large shippers:[1]

> Neither the large nor the small shipper is ever at the mercy of the steamship lines if rates advance to a point which may be thought to be unreasonable. If the rates exceed or even approximate the rates at which tramp steamers can be chartered, large shippers of special commodities immediately protect themselves by the employment of tramps for the transportation of their shipments; and small individual shippers, who cannot accumulate merchandise in quantities sufficient to justify the chartering of tramp steamers, are at such times served by chartering brokers, who are always ready, when rates by the regular lines advance to such a point that a profit can be made by chartering, to lay chartered steamers on the berth, themselves accumulating the shipments of numbers of small merchants, who by this means can always protect themselves against oppression.

When a tramp vessel is placed on the berth by a ship broker or speculator as here stated it is, of course, not engaged in the tramp service as that service is ordinarily conducted and understood; the tramp is temporarily engaged as a general carrier. It is, however, from among the world's fleet of tramps that such vessels are chartered.

Ocean line rates are further influenced by the indirect competition known as "market" or "commercial" competition. Many American exports to non-European markets, for example, need to be marketed in competition with similar goods offered by European exporters. This obliges the lines serving the exporters of the United States to maintain a degree of parity between their rates and those in effect from Europe to

[1] *Annals of the American Academy*, September, 1914, p. 161.

a given competitive market. The effect of this competition is similar to the well-known force of industrial and commercial competition upon railroad charges, but differs in that it is more largely international in scope. Its influence upon the rate activities of ocean conferences is clearly shown in the following statement by Mr. William Boyd, president of Houlder, Weir & Boyd, Inc.:[1]

Deprived of the protection offered by the system of rebates or some other effective tie upon the shipper, the existence of conferences depends entirely upon affording the shipper a satisfactory service and reasonable rates. This is the position of the American conference. Theoretically, working under an agreement in a trade where there is no outside competition, conferences can arbitrarily fix rates. They do fix them, but they cannot, because of the international character of the over-sea trade and the freedom of the ocean to everything that floats, maintain an unreasonable rate for any length of time. An unreasonable rate on any commodity can result only in that commodity being supplied by some other country, and the loss of its carriage to the conference lines. This would not be good business, nor would it be good policy.

. . . The whole history of the shipping business has proved the folly of conferences which tried to trade upon an apparent monopoly, and experience and self-interest have evolved the present-day conference idea, which is combination for the development of trade, and restraint only of wasteful competition amongst themselves. It must surely be evident that, in a business where the buyer has the opportunity of buying in the United States, England, Germany, Belgium or France, the carrying line from America must help the American seller or shipper to make his sale. If the sales are not made, there is no freight to carry. The proper answer to the question therefore is, that while theoretically a conference enables the lines to establish rates, such rates cannot be arbitrary, but must be reasonable. Self-interest demands that they must enable the shipper or merchant to compete with the shipper or merchant of other manufacturing countries.

Market competition also exerts an influence over the relative ocean rates charged to or from different ports of the United States. The rates from American ports to Cuba, as

[1] *Annals of the American Academy,* September, 1914, pp. 196, 197.

described in the report of the Committee on the Merchant Marine and Fisheries, are typical:[1]

> It may be added that the rates from New York are about the same as those from the Gulf ports, and that in the case of most articles it would be impossible for the Gulf ports to enjoy a differential since the Atlantic lines would meet the rates. . . . The New York and Cuba Mail Line, the principal line from New York, is a member of the Gulf Foreign Freight Committee for the purpose, as stated by the management of the line, that "we may obtain information as to the freight rates from the Mississippi Valley to the seaboard and from the Gulf to the Cuban ports in order to enable us to meet their competition." Only in the case of grain and packing-house products, because of the greater nearness to the territory producing the same, do the Gulf lines probably make the rates, the same being followed by the New York lines with a view to developing trade from their territory.

The rate parity maintained between competitive countries and rival ports is by no means absolute. Yet a relationship is maintained, and this is ordinarily true even when the services available to American shippers are offered under foreign flags. Flagrant discriminations, however, have occurred at times, and these, although they are exceptional, have contributed their share to the desire for a larger American deep-sea marine and for a measure of public regulation. Unfair discriminations are less likely to occur in the future, because the Shipping Board, mentioned above, has the power to correct any rate that is unjustly discriminatory between shippers or ports or against "exporters of the United States as compared with their foreign competitors." Even in the absence of regulation the transportation disadvantages of American exporters have sprung mainly from unequal services rather than from unequal ocean rates.

Although ocean line rates are largely determined in conference in accordance with the commercial requirements of international commerce and the limits set by direct and indirect competition, various additional rate factors are instru-

[1] Vol. IV, p. 211.

mental. The value of the commodities carried is considered in determining what the traffic will bear. Particularly is this the case when different rates are assigned to different commodities, or when an ocean line adopts a freight classification.

Ocean line rates are also influenced by differences in the value of the services rendered. Slower or indirect lines are frequently accorded differentials because the value of their service is less than that of faster or more direct lines, and unless their rates are lower they would, in years of normal shipping, fail to obtain their proportionate share of the traffic. The value of the service likewise determines the maximum above which neither individual class and commodity rates nor ocean line rates as a whole can be permanently maintained.

The relative supply of, and demand for, tonnage and cargoes influence line rates somewhat. Ocean conferences tend to prevent the constant rate fluctuations which would occur if supply and demand were the sole consideration, but the conference lines are not loth to increase their charges in case a shortage of tonnage should occur. Neither could they maintain their line rates at a high level throughout a long period of insufficient shipping and surplus tonnage. The exorbitant advance in ocean rates since the outbreak of the war in Europe is due, in large part, though not entirely, to a relative shrinkage in available ocean tonnage. The gradually increasing volume of freight as against the reduction in active merchant tonnage caused by the destruction of belligerent and neutral tonnage, the seizure of merchant ships for transport, hospital, supply and other war purposes, the enforced idleness of nearly the entire ocean tonnage of Germany and Austria, and the reduced merchant tonnage output of the world's shipyards during the first two years of the European War, have enabled the lines as well as the ocean-going tramps to raise their rates to an unprecedented level. Conditions of supply and demand frequently cause wide variations in opposite directions over a particular route.

It is clear that line rates are fixed primarily at what the traffic will bear, i. e., in accordance with the commercial and

competitive forces mentioned above; yet the cost of the services rendered by the lines is also a rate factor. Cost of the service influences line rates in two general ways: First, it determines the minimum below which the general level of line rates on a given route may not long be maintained. The lines do not establish their rates by computing their total costs and adding to this an amount to yield a profit, but they resist any reduction that causes rates to be lowered to the cost of the service, and they advance their rates in case their costs rise to a higher level and commercial conditions do not prevent. A portion of the increase in ocean rates since the outbreak of the war is traceable to the resulting increase in insurance costs, terminal charges and running expenses, including the outlay for wages, supplies and fuel. Should the costs of a particular line, however, differ widely from those of competitive lines or other lines performing similar services, it may at times find itself unable to maintain its rates at a profitable level.

The second way in which the cost of service influences line rates has to do with the making of the rates on particular commodities as distinct from the general level of all line rates. Particular rates are seldom based upon the total cost of service chargeable to an individual commodity on a cost accounting basis. Should special expenses of any kind, however, arise in connection with a particular article, it may be obliged to pay a higher rate than other commodities, provided always that commercial conditions do not prevent such action. In case transshipment costs are incurred, moreover, or special expenses arise in handling a consignment in port, the special amounts are, in many instances, added to the line rates in the freight bill that is submitted for payment. The extent to which particular rates are influenced by the cost of service depends in a large measure upon whether the commodity in question is relatively free from or subject to competition.

Since distance or the length of an ocean voyage is a cost-of-service factor, it follows that it likewise is not a controlling rate basis. The rates on commodities, the movement of which

is not controlled by active commercial competition or competition between ocean carriers, are gauged generally, although not precisely, in accordance with distance. Thus the rates on articles such as grain, flour and provisions shipped from the United States to Europe vary widely as regards ports of destination. On the other hand, the rates on traffic that is more subject to commercial or market competition are frequently blanketed over many ports regardless of relative distances. Differences in the volume of inbound or outbound traffic, or in the relative ability of different trades to bear a higher or lower rate, may cause distance discrepancies involving hundreds and even thousands of miles. Such rate differences cannot be taken at their face value for they may at times be due to differences in the quality or amount of service performed by the various lines. They are usually traceable, however, to the fundamental practice of making ocean rates at what the traffic will bear. Commercial expediency rather than the cost of the service has been the ocean rate-makers' guide.

Many ocean lines still charge what is known as "primage," which in the past was regarded as a payment to the officers and crews of vessels to encourage special care in loading and stowing cargo. At present, however, shippers merely consider that their freights have been increased 5 or 10 per cent in case primage is collected. The steamship companies may variously apply the amounts so collected toward the compensation of their local agents, or the payment of deferred rebates, or they may regard them as a regular part of their general receipts. Primage has been entirely abolished in many parts of the maritime world.

Ocean Charter Rates

The units upon which trip and time charter rates are quoted, i. e., cargo tonnage in the former case and deadweight or other form of vessel tonnage in the latter, were mentioned in Chapter XI; and it has also been noted that it is customary when a tramp is chartered on a time charter party in the foreign trade for the charterer to provide the fuel and pay all port

and terminal charges other than those incurred in connection with the manning of the vessel.

The influences determining ocean charter rates differ from those mentioned in connection with line rates chiefly in that they are more competitive and fluctuate freely with the supply of tramp tonnage and demand for the same. No prices could be more competitive than charter rates; they fluctuate with every slight change in the ratio of traffic to shipper. There is a world-wide competition among vessel owners to secure desirable cargo shipments—a competition that is made possible by means of ship brokers who are to be found in all large ports, and who are, by means of the network of telegraph and cable lines that bind together all commercial centers, kept in touch with each other and with the shippers having cargoes for transportation. When bidding for cargoes of grain, case oil or other bulky commodities that are acceptable to lines either as berth or general cargoes, the competition between tramps, moreover, is supplemented by active line competition.

Charter rates may change many times in the course of a single day at any large port. Those on grain cargoes may fluctuate as freely as the price of grain. They are, in fact, regularly quoted on the floors of the great grain exchanges.

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CHAPTER XXII

OCEAN FREIGHT RATES AND PASSENGER FARES

Through ocean-rail rates, 326. Combined rail-ocean rates, 327. Rates between north Atlantic ports and the Central West, 327. Export and import rates of north Atlantic ports, 328; of Gulf ports, 328; of Pacific coast ports, 329. Reasons for export and import rates, 330. General movement of ocean freight rates, 331. Average annual freights from United States to Liverpool, 332. Diagram of average homeward and outward freights of Great Britain, 333. Principles governing ocean passenger fares, 335. References, 337.

Exporters or importers located in the interior of the United States or at ports not served by ocean carriers are concerned not only with the port-to-port ocean rates discussed in the preceding chapter, but also with the through or combined ocean-and-rail or ocean-and-inland water rates that either they or their foreign customers must pay. The movement of the general level of ocean freight rates, moreover, particularly the advance that has occurred since the outbreak of the war in Europe, is of consuming interest in international trade, because of its bearing upon commodity prices, business profits, and volume of sales. Ocean travelers and immigrants are particularly interested in ocean fares. It is these phases of ocean transportation that will be included in the following chapter.

Through and Combined Rail-Ocean Rates

In the domestic trade of the United States many through or joint rail-water rates are in effect via rail-ocean and rail-lake routes. In the foreign trade, however, with which ocean transportation is primarily concerned, through rates to or from interior points are relatively few. Many were quoted in the

past, American railroads, until 1890, frequently taking a percentage of a fluctuating through rail-ocean rate. The abruptness and extent of the rate fluctuations not only made it difficult to maintain this practice permanently but sometimes resulted in through import rates that were so low in comparison with domestic rail rates as to constitute unwarranted discriminations against domestic shippers. The Hepburn Act of 1916, moreover, made it illegal for railroads to take percentages of a fluctuating through rail-ocean rate by requiring them to publish and file all interstate railroad rates whether on imports, exports or domestic shipments, and to give a notice of 30 days before rate changes are made.

Examples of the relatively few through rail-ocean rates that have been quoted since the enforcement of these provisions are those quoted on railroad freight shipped via certain steamship lines operating from New Orleans, Port Arthur and Texas City to Tampico, Frontera and Vera Cruz, Mexico. Until July 1, 1916, likewise, through rates to specified Oriental and Australian destinations were quoted by transcontinental railroads. The rail portions, however, were shown separately and they were fixed amounts, not a percentage of fluctuating through rates. The through rates contained in the export tariffs of the Trans-Continental Freight Bureau, moreover, were quoted "for information only," the ocean proportions not being guaranteed; and those in the export tariffs of the Chicago, Milwaukee and St. Paul Railroad instructed agents not to contract for through rail-ocean freight until space reservations had been specifically obtained.

The usual practice in the overseas trade is to combine ocean rates with rail or inland water rates, rather than to establish through rates. Numerous inland routes are at times available, and in some instances the rates via different routes vary. Thus between north Atlantic ports and points in the central West there are standard and differential all-rail routes; standard and differential lake-and-rail routes; the lake-Erie Canal-Hudson River route; the lake-St. Lawrence-rail route,

or those routes extended coastwise to New York through Long Island Sound; the lake-St. Lawrence River route; lake transit routes for grain; ocean-rail routes through Virginia ports; and ocean-rail routes through Baltimore or Philadelphia.[1] Additional ocean-rail routes extend between various central western points and north Atlantic ports by way of Savannah or Brunswick, Ga., Charleston, S. C., New Orleans, La., or Galveston, Texas.[2]

It is likewise important that inland exporters and importers should ascertain whether or not any special export or import tariffs applicable to their foreign shipments are in effect, for the rates contained in such tariffs are lower than the regular rates applicable to domestic shipments. The railroads serving the ports of Boston, Portland, Me., and Montreal, for example, grant export class rates that are lower than the class rates on domestic shipments. Those to Boston are the same as the domestic class rates to New York, although the domestic rates to Boston are from 7 to 2 cents per 100 pounds higher. Special port differentials have, moreover, been established for various export commodities, such as grain and flour, when shipped via north Atlantic ports; and special export rates have been granted to a limited—though important—list of export commodities. The eastern trunk lines, likewise, grant special import rates to certain classified freight imported via Boston; to a limited group of imported commodities transported from the north Atlantic ports to points in Central Freight Association territory; and to a limited volume of traffic destined from Europe to the Pacific coast via these ports and the transcontinental railroads.

Both import and export rates are much more numerous on the railroads serving the ports of the Gulf of Mexico, because they are especially desirous of increasing their share of the foreign trade of the interior. The Gulf Foreign

[1] *See* Johnson and Huebner, *Export Shipping,* chaps. v and vi; also *Rates via Rail-and-Lake Routes,* 37 I. C. C. Repts., 302, December 30, 1915.

[2] *Ibid.*

Freight Committee publishes seven important export tariffs containing railroad rates to shipside at various Gulf ports on classified freight and commodities destined for export from numerous interior points to specified foreign countries. It likewise publishes four comprehensive class and commodity import tariffs applicable from shipside at Gulf ports to specified interior destinations.

The transcontinental railroads have similarly endeavored to increase their foreign traffic by establishing export and import rates to and from shipside at Pacific coast ports. The Trans-Continental Freight Bureau, acting for various transcontinental lines, published a "Joint and Proportional Export Tariff" (No. 22-G, effective July 1, 1916) applicable on export shipments from various central western and southern points and from the Morgan and Mallory lines' piers at New York, destined via specified Pacific ports to points in the Orient and Australia, and in a few instances also to Central and South American, Mexican and Hawaiian destinations. A similar export tariff is published by the Chicago, Milwaukee and St. Paul Railroad.

These tariffs contain three groups of export rates: (1) export class rates; (2) export commodity rates on numerous specified commodities; and (3) "all commodities" rates applicable to all but certain excepted export commodities when shipped in straight or mixed carloads having a minimum of 30,000 pounds. The present "all commodities" rate on export shipments destined to Oriental ports is $1.25 per 100 pounds, and to Australian ports $1.50. They encourage the collection or bunching of less-than-carload export shipments by interior forwarding concerns or brokers. The export rates apply only to the Pacific ports of exportation and should not be confused with the through rail-ocean rates via Pacific ports that were mentioned above.

The transcontinental railroads also quote joint and proportional import rates applicable from shipside to interior destinations on many commodities imported via Pacific coast ports from Oriental and Australian points and "beyond."

The reasons for discrimination in rates between domestic and export or import traffic are various:

1. Direct competition between carriers is usually more acute in the foreign than in the domestic trade. Not only is the foreign trade subject to competition among ocean carriers, but the number of competitive routes connecting ocean ports with the interior of the country is unusually large. Numerous all-rail and rail-water routes connecting the north Atlantic ports with the interior are in competition for the import and export trade; and so also are the import and export routes serving the Gulf ports and those connecting the Pacific coast with the interior. The north Atlantic routes as a whole, moreover, are in competition with the routes serving the Gulf ports for the foreign trade of the central West, and both of these groups of foreign-trade routes, in turn, are obliged to compete in some instances against the transcontinental lines which endeavor to divert imports and exports to the ports of the Pacific coast.

2. There is great rivalry between the ports of import and export, and this port rivalry constitutes a form of commercial competition that tends to establish reduced import and export rates. Not only are the ocean ports of the various seaboards in competition with each other for the import and export trade of the interior, but the north Atlantic ports as a group are obliged to compete with the Gulf ports as a group, and to some extent even against ports located on the Pacific coast.

3. The railroads insist that the practice of establishing reduced import and export rates is within the general principle that as distance increases the aggregate charge should increase, but the rate per ton per mile should decline. The aggregate charge on an export shipment from Chicago to Liverpool, for example, is the combined rail charge from Chicago to the port of export, plus the ocean charge from the port to Liverpool, whereas the aggregate rate on a domestic shipment from Chicago to the same port of export consists of the rail rate alone.

4. The principal reason for establishing special import rates is the unusually strong influence exerted by commercial competition in the foreign trade. This is particularly the case in the export trade between the United States and non-European markets, for American exporters are there required to compete against the producers of rival foreign countries. It has been the desire of the rail carriers to stimulate the export trade.

5. Special railroad rates on foreign shipments have, in some instances, tended to counteract the effect of protective import duties. This is particularly true of the import rates on such manufactured articles as have been protected by the tariff laws of the United States.

General Movement of Ocean Freight Rates

It is difficult to show accurately the detailed fluctuations in ocean freights throughout the maritime world, because of the large number of ocean routes and diverse rate bases; yet there are sufficient historical indices to show whether the general level of rates has advanced or receded and approximately how much. The rates to and from Great Britain, for example, ordinarily afford an index, because of the foremost position of that country in the shipping business and the world-wide interdependence of ocean rates. Outward and homeward freights have been systematically compiled by Messrs. Angier Brothers and their rate tables, together with the returns that have been published by the British Board of Trade from time to time, have enabled *Fairplay* to plot the curves of mean or average annual freights reproduced in the diagram on page 333.

Compilations of statistics of mean annual rates applicable to particular commodities shipped from American ports to overseas destinations are likewise available for long periods of years. Typical examples are shown in Table 16.

From the data presented it is evident that prior to the war in Europe the record year of high ocean freights was 1889.

TABLE 16.—AVERAGE ANNUAL FREIGHTS FROM THE UNITED STATES TO LIVERPOOL

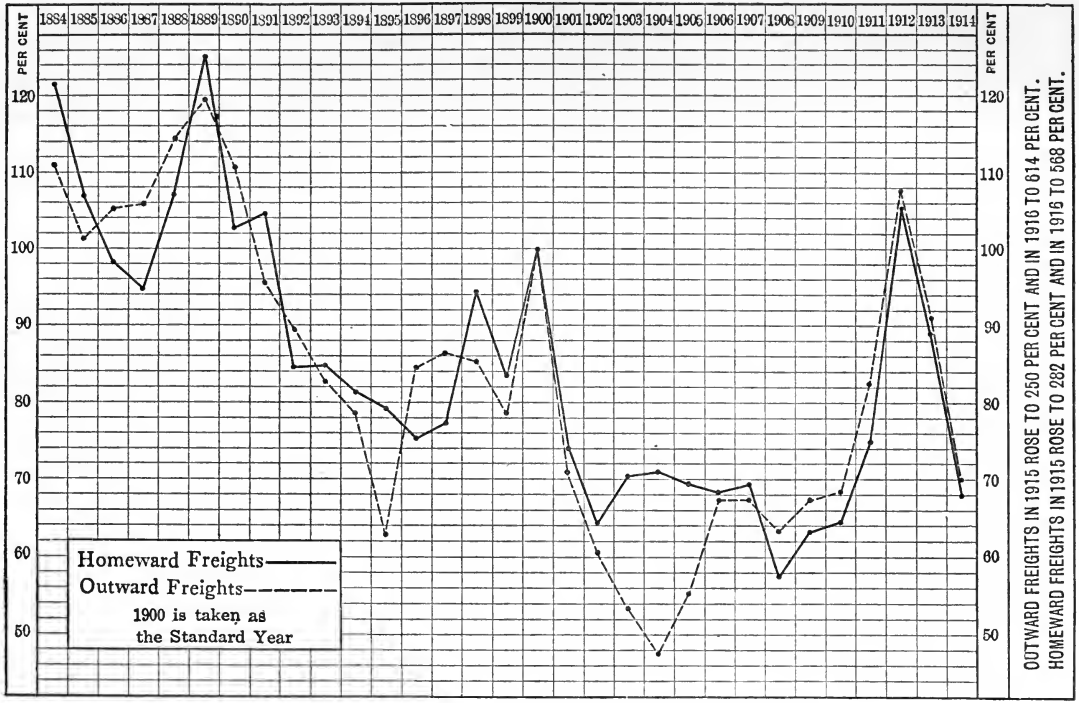
YEARS	Wheat from New York[1] (cts. per bus.)	Wheat from New Orleans[1] (cts. per bus.)	Cotton from New Orleans[1] (cts. per 100 lbs.)	Provisions, all rail from Chicago to seaboard and thence ocean[2] (cts. per 100 lbs.)	Sacked flour, all rail from Chicago to seaboard and thence ocean[3] (cts. per 100 lbs.)
1881–1885	8.0	....	....	....	.....
1886–1890	6.2	9.3	60.7	46.3	36.11
1891–1895	5.3	7.3	40.2	46.5	36.08
1896–1900	6.4	8.9	41.6	45.2	33.35
1901–1905	2.9	5.2	32.2	37.8	23.01
1906	3.1	6.9	34.2	41.0	20.5
1907	3.7	7.1	35.9	40.8	21.25
1908	3.3	6.1	29.9	42.6	20.75
1909	3.4	5.3	28.0	45.4	20.72
1910	3.1	5.6	31.1	45.4	19.75
1911	4.7	6.6	35.3	45.4	.....
1912	7.7	11.3	52.7	48.2	29.0
1913	5.6	8.8	42.3	51.0	30.0
1914	6.3	7.9	41.8	....	.....
1915	28.0	26.9	125.7	106.0	62.5
1916	36.2	49.7	220.8	....	.....

[1] Provided by Bureau of Crop Estimates, U. S. Dept. of Agriculture.
[2] *Ibid.* "Provisions" include cured meat products.
[3] From Annual Statistical Reports of Chicago Board of Trade.

Thereafter ocean rates generally declined until 1895, for ocean freight rates, like railway rates, have declined as technical improvements have reduced the costs of transportation. The economies resulting from the use of more efficient marine engines and of vessels of greater carrying capacity have been accompanied by lower rates. The subsequent periods of advance to 1900; of abrupt decline to 1904 and irregularity to 1908 and 1909; and of gradual rise from that time until 1912, are clearly described in the following statement published in *Fairplay*[1] in connection with its diagrams of average freights:

From 1889 to 1895 freights fell to the extent of 40 per cent. The engineers' strike in 1897, by stopping the production of new

[1] Issue of December 21, 1916.



Fluctuations in Mean Yearly Ocean Freight Rates, 1884-1916

shipping, together with the Spanish-American war in 1898, sent outward and homeward freights up to 91.35 per cent of the 1900 standard, and it was solely due to the demand of the British Government for transports for South Africa that freights went up still higher in 1900, when as much as 35 shillings per ton gross per month was paid for the hiring of some of the large mail and passenger steamers for the transport of troops. These high figures for passenger steamers are, however, not taken into account in the table for obvious reasons. It should be borne in mind that since 1885 the size of steamers engaged in the cargo-carrying trade has increased considerably, and that vessels, owing to their increased size and better dispatch, can now carry cargo at a much lower rate to leave a profit than vessels could do thirty years ago.

The high freights for carrying cargo that were paid in 1900, however, were not the result of an increase in trade generally, but were of a fictitious character, with the result when the transports, etc., were released by the Government, and had to seek freights in their regular trades, the result was disastrous, freights falling 26 per cent in the following year, and remaining at an unremunerative level until September, 1911, when, shipowners having for some years refrained from building to any large extent owing to the impossibility of profitably employing tonnage, the increased trade caused the demand for steamers to more than equal the supply, with the natural consequence that freights were forced up to a paying basis. At that time it was fully anticipated by shipowners generally that they were in for a year or two of good freights, although nothing of an extra abnormal character was anticipated. The strike in the Plate caused a large number of vessels to be tied up there, which were consequently taken off the market. The coal strike in this country [Great Britain] also caused a further large amount of tonnage to be laid idle, while the transport workers' strike in the middle of the year further delayed vessels. When the disputes were over there was a glut of goods to be shifted at different parts of the world, with the result that in order to secure vessels the different markets had to increase the rates, and freights reached a point which no owner in his wildest moment had anticipated. For instance, in order to induce vessels to go to the Plate in ballast, as much as 31 shillings had to be paid, which was directly attributable to the strike on this side tying tonnage up. The threatened closing of the Darda-

nelles was the final spurt, as much as 27 shillings being paid to induce owners to take the risk of loading in the Black Sea.

In 1913 began another reaction which continued until the second half of 1914. Then, however, much of the merchant tonnage of Italy and Spain was withdrawn because of labor strikes, and still later the war caused not only a withdrawal of many merchant vessels from commercial channels by blockade, destruction and retention for military and naval uses, but a large increase in running and capital expenses, insurance costs, and terminal charges. Ocean freight rates the world over advanced to a war level and soared to unprecedented heights. In 1915 and the early part of 1916 the rates on many commodities exported from the United States to Europe were more than five times the rates prevailing immediately before the war; and those on shipments to non-European neutral countries located far away from the war zones advanced 300 and 400 per cent. Many considered this to be the maximum that the traffic could bear. Later in 1916, however, it appeared that war traffic can seemingly bear an almost limitless burden, for the average rates for 1916, shown in the diagram on page 333, are over 750 per cent above the average homeward and outward freights of 1914. With the year 1900—a year of boom shipping—as 100 per cent, the homeward ocean rates of Great Britain, in 1916, were reported to be 568 per cent and the outward freights 614 per cent.

Ocean Passenger Fares

The principles governing the making of ocean passenger fares are generally the same as those stated in connection with ocean freight rates, subject to certain inherent differences between the nature of passenger and freight traffic. Over a given route they are fixed at varying amounts per passenger subject to a threefold variation: (1) They are different via different lines or steamers depending upon their relative speed, accommodations or the superior character of their services.

On the north Atlantic route, where the steerage traffic is generally pooled by the passenger lines, the steerage fares via given lines or steamers may, moreover, be advanced relative to those via others with a view to directing the volume of steerage traffic so as to maintain the percentages allotted to each line. (2) They vary according to the class of passage selected by the traveler, i. e., according to the passenger service classification described in Chapter XIII. (3) On a given steamer the cabin fares within a class vary for different cabins or staterooms according to their location, reservation for individual passengers or other special considerations. This gradation of fares is due partly to considerations of what the traffic will bear and the relative value of the service rendered, and partly to cost differences.

Though ocean fares are usually fixed primarily at what the traffic will bear, the competitive forces affecting them differ somewhat from those influencing line freight rates. The force of international commercial competition and port rivalry, although by no means entirely absent, is not so prevalent as in freight transportation. Ocean fares, moreover, are not subject to tramp competition. Direct competition is limited to the lines themselves, and is subject to control by conferences.

Prior to the war in Europe there were at least twelve north Atlantic passenger agreements (see diagram in Chapter XIX, p. 292), through which the heavy steerage traffic moving between the United States and Europe was pooled and its fares established in conference, and through which minimum first- and second-class cabin fares were agreed upon. The N. D. L. V. passenger agreement referred to in Chapter XIX, for example, provided that [1]

No line has the right to alter its steerage and second-cabin rates without previously informing the Secretary. The Board of Secretaries cannot compel any line to fix its gross rates for adult steerage passengers at less than 100 marks, unless with the con-

[1] House Committee on the Merchant Marine and Fisheries, Vol. IV, *Proceedings in the Investigation of Shipping Combinations,* p. 28.

sent of the Board of Presidents. The lines agree to commence with definitely fixed steerage rates, all of which are stipulated in the contract. The lowest cabin rate must be at least 50 per cent higher than its steerage rate and 30 per cent higher than the highest steerage rate of any of the other lines.

Few passenger conferences or agreements exist outside of the United States-European traffic, but the competition in the passenger business between the lines operating elsewhere is indirectly controlled through their many freight agreements. Except on the north Atlantic route the long-distance ocean passenger traffic is secondary to the freight traffic of the passenger-carrying lines. Any agreement concerning division of territory or ports, the number of their sailings, vessel tonnage, or number of steamers influences passenger as well as freight competition.

Ocean fares have fluctuated less, and have, on the whole, been maintained at a higher level than freights, both because of the difference in competitive conditions mentioned above and because of the higher capital, operating and maintenance costs of the passenger service. While the economies resulting from increased size of vessels and efficiency of marine engineering were accompanied by lower freight rates, similar economies in passenger steamers were largely offset by the additional costs occasioned by increased speed, comfort, luxury and betterments of the passenger service. There are times, of course, when ocean freights temporarily soar to levels which passenger fares cannot approach. The war in Europe, for example, although stimulating an acute demand for freight tonnage, caused a pronounced shrinkage in the volume of the north Atlantic passenger traffic.

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PART FOUR

GOVERNMENT AID AND REGULATION OF OCEAN COMMERCE AND TRANSPORTATION

CHAPTER XXIII

AID BY THE FEDERAL GOVERNMENT

National maritime success and progress, 341. Purposes of government aid, 342. Four general methods of aid in United States, 342. Tabulation of executive departments and bureaus and of independent agencies, 343. Federal harbor improvements, 345. Corps of Engineers, 346. Increasing the safety of navigation, 346. Bureau of Lighthouses, 346. Coast and Geodetic Survey, 347. Steamboat Inspection Service, 348. Bureau of Navigation, 348. Coast Guard, 348. Weather Bureau, 349. Hydrographic Office, 350. Naval Observatory, 351. Increasing the profits of ocean transportation, 351. Governor of Panama Canal, 351. Bureau of Insular Affairs, 351. Bureau of Foreign and Domestic Commerce, 352. Bureau of the Census, 353. Bureau of Standards, 354. Bureau of Fisheries, 354. Bureau of War Risk Insurance, 355. Bureau of Public Health, 355. Bureau of Animal Industry, 355. Bureau of Chemistry, 355. Office of Markets and Rural Organization, 355. Bureau of Crop Estimates, 355. Forest Service, 356. Post Office Department, 356. Consular Service, 356. Diplomatic Service, 357. Office of Foreign Trade Advisers, 357. Geographical divisions of Department of State, 358. Bureau of Citizenship, 358. Bureau of Labor Statistics, 359. Department of Interior, 359. Alaskan Engineering Commission, 359. Bureau of Education, 359. Patent Office, 359. Geological Survey, 359. Bureau of Mines, 359. Federal Trade Commission, 359. United States Shipping Board, 359. National Museum, 359. Pan American Union, 359. Federal aid to shipbuilding, 360. References, 361.

THE ocean carrier and the service it performs have for centuries been the special concern of every country with seaboard and ports. The ocean being the avenue of international intercourse, the highway connecting the home country with its colonies and dependencies, the theater of naval struggles epoch-making in the life of nations and in the survival or downfall of types of civilization, every progressive country having maritime boundaries is solicitous that its shipping interests shall prosper. Some countries have succeeded, and others have failed, in their efforts to maintain and augment

their position on the sea; but every country whose lands reach the sea has sought, each in its own way, to establish conditions that will enable its people to seek wealth from the sea, and to carry the flag and prestige of the country beyond the narrow confines of its land domain.

The relation of the sea to the development of national greatness has, moreover, become far more important today than it has been in past centuries. The ocean cable, the steamship, the enormous volume of international trade, the efficiency of the modern naval fleet, the possibilities of deciding the issues of war by naval conflicts, are causing Great Britain, Germany, France and the United States, Japan and other progressive powers, to give more and more attention to their commercial and shipping facilities and the strength and efficiency of their naval forces.

Although this volume is concerned primarily with transportation as distinguished from commerce, the following discussion of government aid and regulation includes the relation of the government to ocean commerce as well as ocean transportation. To aid transportation is to facilitate commerce; to increase commerce is to enlarge the business of the carrier; to regulate either one is to influence the other; accordingly, it has seemed best not to attempt to confine this and the three following chapters solely to ocean transportation.

Government aid is given to those interested in shipbuilding and ocean transportation for economic and military reasons. By fostering its shipping interests each country hopes to increase its foreign trade, develop thereby its domestic industries and trade, and thus promote its general economic progress. Moreover, a strong merchant marine makes easier, if, indeed, it does not alone make possible, the development of a powerful navy. The needs of the navy always constitute one of the strong arguments in favor of liberal aid to merchant shipping.

In the United States, government assistance is given to ocean transportation in four general ways: (1) The government improves or constructs harbors. (2) It takes various measures to increase the safety of navigation. (3) It seeks to

make the ocean transportation service profitable. (4) It aids the shipbuilding industry.

State governments and municipalities, as well as the Federal Government, participate in the work of aiding and regulating ocean commerce. This exercise of power by three different authorities makes the American system of aiding and regulating ocean transportation relatively complex, and a description of the system unavoidably somewhat detailed. The activities of the federal, state and city governments will be described in turn.

The powers of the Federal Government over commerce, and its activity in aiding and regulating ocean transportation, are greater than those of the states and cities, and it exercises its authority through a confusing number of departments, bureaus and other government agencies. It is in the various interested committees of Congress that the underlying legislation is framed, and the two houses of Congress enact the laws that embody the government's policy of aid. The following tabulation indicates, however, that a highly complex federal organization has been created for administering and enforcing this policy. It includes alike those that aid and those that regulate ocean trade and transportation, because their activities in many cases include both functions. Those bureaus or agencies, however, whose duties are mainly to regulate rather than to render aid will be more fully described in Chapter XXIV.

DEPARTMENTS, BUREAUS AND AGENCIES OF THE UNITED STATES GOVERNMENT CONCERNED WITH AIDING AND REGULATING SHIPBUILDING, MARITIME COMMERCE AND OCEAN TRANSPORTATION

I. EXECUTIVE DEPARTMENTS AND BUREAUS

1. War Department
   - Corps of Engineers of the United States Army
   - Governor of the Panama Canal
   - Bureau of Insular Affairs
2. Department of Commerce
   - Bureau of Foreign and Domestic Commerce

Bureau of Lighthouses
Coast and Geodetic Survey
Steamboat-Inspection Service
Bureau of Navigation
Bureau of the Census
Bureau of Standards
Bureau of Fisheries

3. Treasury Department
   Customs Service
   The Coast Guard
   Bureau of Public Health Service
   Bureau of War Risk Insurance
   Secret Service
4. Department of Agriculture
   Weather Bureau
   Bureau of Animal Industry
   Office of Markets and Rural Organization
   Bureau of Crop Estimates
   Bureau of Chemistry
   Forest Service
5. Navy Department
   Navy and Marine Corps
   Bureau of Navigation
      Hydrographic Office
      Naval Observatory
   Inspection of Vessels Awarded Contracts for Carrying Ocean Mails
6. Post Office Department
   Division of Foreign Mails
7. State Department
   United States Consular Service
   Diplomatic Service
   Office of Geographical Divisions
   Bureau of Citizenship
   Foreign Trade Advisers
8. Department of Justice
   Enforcement of Laws of the United States
9. Department of Labor
   Bureau of Immigration
   Bureau of Labor Statistics

10. Department of the Interior
    - Governor of Alaska
    - Governor of Hawaii
    - Alaskan Engineering Commission
    - Bureau of Education
    - Patent Office
    - Bureau of Mines
    - Geological Survey

II. Independent Agencies
1. Federal Trade Commission
2. Interstate Commerce Commission
3. United States Shipping Board
4. War Trade Board
    - Bureau of Export Licenses
    - Bureau of Imports
    - Bureau of Transportation
    - Bureau of Enemy Trading
    - Bureau of War Research
5. United States Food Administration.
6. United States Fuel Administration
7. Priorities Committee
8. Federal Judiciary
    - Supreme Court
    - Circuit Courts of Appeal
    - United States Court of Customs Appeals
9. The National Museum
10. United States Congress
    - Congressional Committees
11. The Pan American Union.[1]

Federal Harbor Improvements

The policy of federal aid to navigation and shipping has for many years included the expenditure of national funds for the improvement of rivers and harbors. Since 1802, when the first small federal appropriation for public piers on the Delaware River was made, a total of $936,287,000 has been appropriated. The latest Rivers and Harbors Act, that of August

[1] An international agency.

8, 1917, carried a total of $27,826,150, which, together with an appropriation of $7,005,000 carried in the Sundry Civil Appropriation Act of June 12, 1917, and various additional appropriations, provided an aggregate appropriation of $37,744,124 for the year 1917. The actual federal expenditure on river and harbor improvements during the fiscal year 1917 amounted to $31,864,867.

The Corps of Engineers of the United States Army, acting under the Chief of Engineers and the Secretary of War, has charge of river and harbor improvements. The construction of breakwaters, the excavation of channels, the dredging of harbors, the establishment of harbor lines marking the limit beyond which piers and wharves may not be extended within harbors, and all other necessary engineering work connected with laying out, improving and maintaining harbors come under the Secretary of War and the United States Engineers. The Corps of Engineers also makes investigations, surveys and recommendations to Congress concerning proposed river and harbor improvements. A special board of nine engineers brings all projects together and makes definite recommendations; and so also does the Chief of Engineers. Congress, however, has by no means been, in all instances, guided solely by the merit of projected improvements. There has been much agitation in favor of a modification of the present methods of appropriating and applying funds for river and harbor improvements. Merit or public need, rather than political expediency, should always determine when and where work shall be done. Even under present methods, however, many appropriations have been for improvements that have been of acknowledged advantage to ocean navigation and international commerce.

Increasing the Safety of Navigation

The improvement of harbors promotes ocean navigation and trade by increasing the safety of navigation and the profits of the service. The safety of navigation is, however, promoted in many other ways.

Eight bureaus of the Department of Commerce are connected more or less closely with ocean trade and transportation, and two of these are concerned largely with the safety of navigation. The Bureau of Lighthouses, which, in 1910, superseded the Lighthouse Board, is in charge of a Commissioner of Lighthouses. The bureau is concerned with the construction, illumination, inspection and superintendence of lighthouses, light-vessels, beacons, buoys, sea marks, and other installations designed to aid navigation, with the testing of apparatus and with the marking of channels leading to seaboard and Great Lakes harbors. It also publishes information concerning aids to navigation in the weekly *Notice to Mariners,* which the bureau issues jointly with the Coast and Geodetic Survey.

The Coast and Geodetic Survey supplements the work of the Corps of Engineers and of the Bureau of Lighthouses by preparing charts and maps of the sea coast and of the adjacent ocean. Authorized by Congress in 1807, the "Coast Survey" was, with the exception of two short periods before 1836, continuously connected with the Treasury Department until 1903, when it was placed under the Secretary of Commerce and Labor. In 1913, when the separate Department of Labor was created, the Coast and Geodetic Survey remained under the jurisdiction of the Secretary of Commerce.

The maps and charts prepared by the Coast and Geodetic Survey show with great detail and accuracy the coast line, the location of shoals and bars, the depth of the sea near the shore, the location of all channels and of all lighthouses and buoys, the location and direction of all currents, and the variation of the magnetic needle; in fact, the maps aim to give the mariner all the information he needs to enter and clear ports, to navigate the coasts, and to fish on the banks off the coasts of the United States and British America. The work of the survey is not confined to the shores of the United States, but has covered the Pacific coast from San Diego to Panama, the Hawaiian Islands, Alaska, and now includes the coast of Porto Rico and the Philippines. Surveys have also been made of parts of the

coasts of Brazil, Cuba and China; the purpose of the survey being to make, as far as possible, all the maps required for the safety of American shipping. The charts prepared by the Coast and Geodetic Survey are "sold at the cost of printing and paper."

The results of the observations made by the bureau are given publicity through various media, including sailing and harbor charts, general charts of the seaboard, "Tide Tables" and "Coast Pilots" containing sailing directions. As previously stated, the Coast and Geodetic Survey is the joint publisher with the Bureau of Lighthouses of the weekly publication known as *Notice to Mariners.*

The Steamboat-Inspection Service, by inspecting vessels, boilers and equipment, and the Bureau of Navigation of the Department of Commerce by administering the navigation laws, also promote the safety of navigation, but their work from the standpoint of the vessel owner is mainly regulatory.

The Coast Guard of the Treasury Department has, since January 28, 1915, had charge of both the Revenue Cutter and Life Saving services, which, until then, had been administered through separate bureaus. A portion of the work of the Revenue Cutter Service is regulatory in character and will be described in the following chapter, but it is also concerned with the safety of navigation, for revenue cutters are called upon to assist vessels in distress, to remove derelicts, wrecks and other obstructions to navigation, save life and property at sea, and to take part in the international ice patrol off the Grand Banks. The officers of the Revenue Cutter Service, moreover, assist the life saving corps by instructing, drilling and inspecting crews and by constructing stations. The Revenue Cutter Service was organized in 1790, eight years before the Navy Department was created.

The Life Saving Service, which is now also a part of the Coast Guard, dates from 1848. The seaboard and Great Lakes are divided into thirteen districts, in which there were 325 stations in 1916. The keepers and surfmen of the service maintain strict watch, and patrol the coasts at night or during

storms, warn vessels of impending peril, save lives and property, recover missing buoys, and relight extinguished beacons.

The Coast Guard reports that during the year 1916 it assisted 1,453 vessels of all classes, saved the lives of 1,216 persons or rescued them from peril, removed or destroyed 30 derelicts and obstructions, and rendered miscellaneous assistance in over 2,000 instances. The bureau compiles statistical reports showing marine accidents occurring within the field of its own operations and also such casualties as are reported elsewhere throughout the world.

The dangers to which shipping is exposed from storms have been largely reduced by forecasts and storm warnings issued by the Weather Bureau of the Department of Agriculture, which, since 1891, has been connected with the Department of Agriculture. The law of 1890 reorganizing the bureau provided that it

shall have charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers, the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation.

The Chief of the Weather Bureau states that of the various warnings issued by the Weather Service:

Those of storms and hurricanes, issued for the benefit of marine interests, are the most important and pecuniarily valuable. Storm warnings are displayed at nearly 300 points along the Atlantic, Pacific and Gulf coasts, and the shores of the Great Lakes, including every port and harbor of any considerable importance; and so nearly perfect has this service become, that scarcely a storm of marked danger to maritime interests has occurred for years for which ample warnings have not been issued from twelve to twenty-four hours in advance. The reports from the West Indies are especially valuable in this connection, as they enable the bureau to forecast with great accuracy the approach of those destructive hurricanes which, during the period from July to October, are liable to sweep the Gulf and Atlantic coasts. The sailings of the immense number of vessels engaged in our ocean

and lake traffic are largely determined by these warnings, and those displayed for a single hurricane are known to have detained in port on our Atlantic coast vessels valued, with their cargoes, at over $30,000,000.

The bureau has arranged with various wireless and telegraph services for disseminating broadcast over the oceans both forecast messages and storm warnings.

The Hydrographic Office, which, together with the United States Naval Observatory, was established in 1842 as an independent bureau, has been a part of the Bureau of Navigation of the Navy Department since 1866. As stated by Dr. D. S. Hanchett:[1]

It is charged with improving the means of safe navigation, both for vessels of the Navy and of the merchant marine, by providing accurate nautical charts, sailing directions, and manuals of instruction. Much of the information contained in its periodical publications is of such importance to mariners that it is "sent broadcast by radio," so that all vessels within reach may get it at once. Monthly charts and weekly bulletins covering the north Atlantic, monthly charts of the north Pacific, and less frequent charts of other oceans are published. These charts locate both fixed and temporary dangers to navigation, indicate the usual paths followed by storms at particular periods, the relative amounts of fog which may be met, the direction and force of prevailing winds, the direction of ocean currents, the variation of the magnetic needle, and the courses to be followed in crossing the ocean. These "steamship lanes" were originally suggested by Lieutenant M. F. Maury, of the United States Navy, for routes between northern Europe and the United States, but until 1891 there was no agreement to follow them. In that year five companies, and in 1898 all companies, concerned in transatlantic service agreed to do so. The office has also played an important part in inducing the steamship lines to change their courses during ice seasons in order to avoid danger.

The data for the maps and charts of the Hydrographic Office are secured mainly from the captains of the vessels, who,

[1] Johnson and Collaborators, *History of Domestic and Foreign Commerce of the United States*, II, p. 252.

upon arrival at an American port, report to the officials of the Hydrographic Office the location of all obstructions passed on the voyage. Reports of the outbound voyages are now being cabled back to the United States from some foreign ports. The captains making voluntary reports receive free of charge such pilot charts as they may need; other persons may obtain the charts for the cost of the printing and paper.

Closely connected with the Hydrographic Office is the Naval Observatory, which publishes the *American Ephemeris and Nautical Almanac,* containing astronomical data that are useful in the navigation of vessels. The Observatory also tests the accuracy of navigation instruments and establishes standard time and differences of longitude.

The United States Navy itself and the Marine Corps stand ready to protect American shipping to the best of their ability in case of war.

Increasing the Profits of Ocean Trade and Transportation

The federal executive departments and bureaus charged with the promotion of ocean trade and transportation by directly or indirectly enhancing profits are even more numerous than those concerned with the safety of navigation. The river and harbor activities of the Corps of Engineers of the United States Army are important in this capacity. So are the advantages to be derived from the Panama Canal, which is administered by a governor, who reports to the Secretary of War.[1]

The commercial functions of the Bureau of Insular Affairs of the War Department include the publication of statistics of the imports, exports, shipping and immigration of the Philippine Islands and Porto Rico. The Philippine Commission, which reports to the Secretary of War, moreover, legislates concerning commercial matters; and under a Governor-General there are various executive bureaus that are concerned with the development of Philippine commerce and shipping.

[1] *See* discussion of Panama Canal in chap. vii.

The trade of Porto Rico is similarly furthered by the Governor of Porto Rico, who reports to the Secretary of War.[1]

Four bureaus of the Department of Commerce perform services that tend to advance the profits of ocean trade and transportation. Especially important is the Bureau of Foreign and Domestic Commerce, which is a consolidation of what formerly comprised three older bureaus—Statistics, Foreign Commerce, and Manufactures. The preliminary consolidation occurred in 1903, when the Bureau of Statistics and the Bureau of Foreign Commerce were combined; and the final consolidation occurred in 1912, when the Bureau of Statistics and Manufactures were brought together. The trade activities of the Bureau of Foreign and Domestic Commerce are numerous and are gradually expanding:

1. It publishes a large amount of valuable trade information which it obtains through the Consular Service of the State Department and through its own commercial agents. It publishes a daily newspaper known as *Commerce Reports,* formerly *Daily Consular and Trade Reports.* The special purpose of this publication is to provide current information regarding available trade opportunities in foreign markets. The bureau also publishes a monthly statement of imports and exports and of vessel entrances and clearances known as *Monthly Summary of Foreign Commerce of the United States;* a quarterly statement of *Imports Entered for Consumption;* a *World Trade Directory* and special trade directories of South America, Central America and the West Indies; an annual *Statistical Abstract of the United States;* an annual statement of our foreign trade known as *Commerce and Navigation;* a semi-annual statement of the *Trade of the United States with the World;* a "Tariff Series," consisting of bulletins dealing with foreign import duties and tariff regulations; and many special trade reports and bulletins containing information concerning foreign markets, trade conditions, packing

[1] *See Annual Report of the Chief of the Bureau of Insular Affairs* (1915); *Annual Report of the Governor of Porto Rico* (1916); and *Annual Report of the Philippine Commission* (1915).

requirements, ports and terminals, government aid to shipping, navigation laws and similar subjects. In its main office in Washington the bureau maintains an *Exporters' Index,* which lists some 17,000 firms in the United States that are interested in exporting. This index is supplemented by various district indices that are maintained at the district offices that have been established in different parts of the country. The bureau also keeps an index of foreign dealers, which is of importance to American exporters.

2. The bureau maintains commercial agents at various cities in the United States to provide information to manufacturers and merchants and promote trade by personal contact. It also supplements the work of its own commercial agents by establishing coöperative branch offices at various cities throughout the country. The coöperative branch offices are jointly administered by the bureau and certain chambers of commerce, railroads and trade organizations.

3. The bureau sends commercial agents and commercial attachés abroad to promote the foreign trade. Especial attention is paid to attachés who are assigned to particular countries. The attachés are connected with the diplomatic service of the State Department, but are directly in the employ of, and subject to, the Bureau of Foreign and Domestic Commerce.[1]

4. The bureau coöperates generally with commercial organizations throughout the United States.

The Bureau of the Census, in the Department of Commerce, is the chief agency by which the United States Government collects and publishes statistics. It has been a permanent bureau only since 1902; prior to that time the Census Office had an intermittent existence, being recreated each ten years by Congress to take the decennial census. The decennial enumeration of population required by the Constitution has come, by gradual enlargement of the scope of the census, to include comprehensive social, industrial and commercial statistics, accompanied by monographic texts interpreting the statistical tables, and presenting much historical and economic data. The act of 1902,

[1] *See* C. D. Snow, *Factors in Trade Building,* chap. ii.

creating a permanent Census Office, provides, among other things, for the collection each ten years of the statistics of transportation by water, and for the collection of such additional statistics relating to transportation as Congress may from time to time require. The Census Office now compiles statistical reports on a variety of subjects, including a census of manufactures once in five years; and it takes a similar quinquennial census of agriculture and a variety of other industries. It issues current statistical reports each year concerning the production and distribution of cotton and forest products.

The Bureau of Standards in the Department of Commerce is charged with promoting the progress of engineering, manufacture and commerce, by standardizing weights and measures, and by being "a source of information along scientific lines." "Two laboratories, suitably equipped for carrying on investigations and measuring instruments of all kinds," are located in the suburbs of Washington. The bureau staff consists of a director and a corps of physicists and chemists.

Ocean commerce is indirectly aided, and the business of ocean transportation is increased, by the aid given to the maritime fishing industry by the Bureau of Fisheries, now in the Department of Commerce. The office of Commissioner of Fish and Fisheries was created by Congress in 1871, and the office was an independent branch of the government service until 1903, when it became a bureau of the Department of Commerce and Labor. The bureau studies the life history and food of the leading varieties of fish, stocks the lakes, streams and coastal waters with young fish, and seeks to improve the methods and apparatus of the fisheries industry. It operates fifty-one fish hatcheries and seventy-six auxiliary field stations, located in thirty-two states and Alaska. It propagates fresh-water mussel in the Mississippi valley to promote the American pearl button industry. It supervises the fur-seal industry of the Pribilof Islands in Bering Sea, and the government's fur-bearing animals in Alaska. The bureau has, indeed, entered the fur trade as a trader, for it has in recent

years sold seal skins and fox skins in the St. Louis fur market for the account of the United States Government.

The fishing industry is important not only because it affords a livelihood for those engaged in it, and contributes to the general food supply of the country, but also because it is an industry that develops hardy seamen, and enables the merchant fleet and the navy to secure men for their crews more readily than they otherwise could. During the days of the maritime greatness of the United States the American fisheries were a large industry, and now that the United States is again turning to the sea, there are special reasons why the country should seek to perpetuate and strengthen its fisheries.

The principal bureau of the Treasury Department for the assistance of ocean trade and transportation is the Bureau of War Risk Insurance, the activities of which were discussed in Chapter XVI. The Bureau of Public Health renders assistance through its hospital service, but its service is mainly regulatory. The Treasury Department, moreover, issues a quarterly circular stating the value of foreign coins, and at long intervals a bulletin known as "Monetary Systems of the World." This department, together with the Federal Reserve Board, moreover, supervises the banks that finance much of the country's foreign commerce. In 1915 it originated and administered the first Pan-American Financial Congress.

The Bureau of Animal Industry, of the Department of Agriculture, supervises the exportation of meat products and live stock, a function that is chiefly regulatory, but in so doing it creates confidence in foreign countries and thereby creates a wider market. The activities of the Bureau of Chemistry similarly are mainly concerned with trade regulation, but its supervision jointly with the Treasury Department of imported foods and drugs is also a form of aid to legitimate trade. The Office of Markets and Rural Organization is mainly concerned with the domestic trade, but it also provides trade information concerning international commerce in farm products. The Bureau of Crop Estimates publishes current crop reports containing detailed information concerning the grow-

ing and harvested crops of the United States, and much data on crops in foreign countries. These crop reports are of value to all who are engaged in agricultural commerce—export as well as domestic.[1] Many valuable reports on the lumber trade are issued through the Forest Service of the Department of Agriculture.

The Post Office Department, through the Division of Foreign Mails, awards mail contracts to American steamship lines operating under the mail contract act of 1891; and the vessels carrying the mails under this act are inspected by experts from the Navy Department. It may also in the future award contracts under the mail subsidy act of March 3, 1917. The international mail services provided by the Post Office Department and the numerous international parcels post agreements, which it has negotiated, have already been discussed.[2]

Especially important in the promotion of ocean trade and transportation profits is the United States Consular Service in the State Department.[3] Nine hundred consular officers—consuls-general, consuls, vice-consuls, and consular agents are stationed abroad in over five hundred trade centers. Their activities tend to promote the foreign trade and American shipping in a number of ways:

1. As stated above, the consuls of the State Department provide data for numerous trade reports which are edited and published by the Bureau of Foreign and Domestic Commerce in the Department of Commerce.

2. They keep on file lists of representatives of American business firms; they maintan files or catalogues of American exporters; they introduce American salesmen to the trade; and when visiting the United States have personal conferences with American business men in Washington or at the branch offices of the Bureau of Foreign and Domestic Commerce, at local

[1] *See* G. G. Huebner, *Agricultural Commerce,* chap. xiv.

[2] *See* chap. xiv.

[3] For statement of organization and development, see Johnson and Collaborators, *History of Domestic and Foreign Commerce,* II, chap. xxxviii, pp. 266-94.

chambers of commerce and other commercial organizations.

3. The consuls assist and supervise the merchant marine and shipping abroad by performing functions such as certifying and issuing statements covering American wares entering abroad in bond or returning to the United States; by receiving ship's papers when American vessels are in port; issuing bills of health to vessels clearing for the United States; making reports of health conditions; supervising the shipping and discharge of American seamen abroad; providing relief and transportation to destitute seamen; settling disputes between officers and the men; and taking charge of wrecked vessels and cargoes.

4. The consuls protect generally American citizens and property abroad.

5. In some countries, where legal practices are radically different or in an undeveloped condition, the consuls exercise extraterritorial functions. In countries such as China, Siam, Turkey,[1] Persia,[2] Tripoli,[3] Morocco and in some others the consuls are charged with judicial duties.

The Diplomatic Service, in the State Department, protects American commerce and shipping chiefly in the negotiation and administration of commercial treaties. Its representatives abroad coöperate with the United States consuls, and with the commercial attachés of the Bureau of Foreign and Domestic Commerce. They are especially important in protecting American citizens and property abroad during times of war. The following statement by Mr. Frederick T. Frelinghuysen, Secretary of State under President Arthur, indicates the general differences between the functions of the diplomatic and consular services in ordinary times of peace: "The diplomatic officer does for the nation what the consular officer does for the citizen. Speaking generally, the consul aids the individual and protects separate interests, while the minister acts for the nation and guards its general political and commercial welfare." [4]

[1] Question pending when diplomatic relations were broken.
[2] Applicable only in certain cases.
[3] No American consular offiers at present.
[4] Exec. Doc. No. 146, 48 Cong., 1 sess., p. 1.

The Office of Foreign Trade Advisers in the State Department maintains a corps of trade experts, a commercial library and many files on foreign commerce. Business men who visit the State Department are frequently referred to this office, but its main purpose is to advise the department itself in trade matters—to guide its foreign trade policy, to frame commercial treaties, and to ascertain whether or not American commercial rights are being infringed. The following is a concise statement by Mr. C. D. Snow, of the Bureau of Foreign and Domestic Commerce:[1]

> This office prepares memoranda and compiles statistics for the use of the Department of State in considering questions arising in the foreign commercial relations of the United States. It pays particular attention to the diplomatic aspects of new developments in our foreign trade. It keeps the department informed of the needs of American business and the status of particular American enterprises in foreign countries when changes in the government's foreign policies or foreign relations are pending or seem advisable. It points out discriminations against American commerce in foreign countries and endeavors, through the diplomatic and consular services, to have all tariff and other discriminations removed. It censors incoming consular and diplomatic reports and trade letters before transmitting them to the Bureau of Foreign and Domestic Commerce or elsewhere, to avoid the dissemination of matter of a diplomatic character. It prepares instructions for the consular and diplomatic officers in matters relating to commerce.

It is also through the trade advisers that the commercial reports received from American consuls are transmitted to the Bureau of Foreign and Domestic Commerce.

The Department of State has various geographical divisions —i. e., of Latin American, Mexican, Far Eastern, Near Eastern, and Western European Affairs—which handle the diplomatic and consular correspondence of their respective territories when not of an administrative character. Their services are particularly important in connection with matters such as the obtaining of railroad, land, mining, construction or

[1] In *Factors in Trade Building*, 50, 51.

other business concessions abroad; protecting patent rights; appointing financial and other advisers to foreign governments; settling business claims; or removing foreign trade discriminations. The Bureau of Citizenship in the State Department is concerned with the promotion of foreign trade in so far as it issues passports, examines certificates of the registration of citizens in consulates abroad, authenticates documents for use in foreign countries, and furnishes to citizens letters of introduction to members of the foreign service.

The Bureau of Labor Statistics in the Department of Labor promotes trade and shipping indirectly through its studies of wages, prices and costs of living in foreign countries.

The Department of the Interior has supervision over the affairs of Alaska and the Hawaiian Islands. It receives and publishes the reports of the governors of these territories, makes recommendations for legislation, and has issued a handbook on Alaska that includes much information concerning the commerce and industry of that territory. The Alaskan Engineering Commission is in charge of the construction of the government railway system in Alaska, which will have an important bearing upon the future industry and commerce of Alaska and the United States. The commission is a semi-independent body, which renders reports to the Secretary of the Interior. The Bureau of Education in the Department of the Interior has published information concerning commercial education in Germany and other foreign countries. The department renders assistance to business men and indirectly influences the export trade through the Patent Office, the Geological Survey and the Bureau of Mines.

Various individual government agencies are also engaged in the protection of ocean trade and shipping. The Federal Trade Commission has sent special agents abroad to investigate trade conditions, it has held public hearings on foreign trade, and has issued a detailed report on *Coöperation in American Export Trade.* The United States Shipping Board, as will be more fully described elsewhere (Chapter XXVIII), is instructed to administer the federal ship purchase plan pro-

vided for in the act of September 7, 1916. The National Museum maintains commercial and industrial exhibits similar to those of a specialized commercial museum.

The Pan American Union, which is an international organization maintained jointly by the United States Government and twenty other American republics, has done much to promote friendly understanding and commerce between the republics of the Western Hemisphere. It acts as a center of trade information concerning Latin America, as a means of coöperation with foreign trade organizations and conventions, and as an adviser to American exporters and importers. It publishes a monthly bulletin—*Bulletin of the Pan American Union*—in four languages, also handbooks and numerous special trade reports.

Federal Aid to Shipbuilding

Though the shipbuilding industry will be described in greater detail, the aid that it receives from the Federal Government may be summarized at this point because of the close connection between merchant shipping and ship construction. American registry for the foreign trade was, for many years, limited to American-built vessels, but in later years this policy did little to assist American shipyards and did much to restrict the registration of vessels under the American flag. The high costs of construction in domestic shipyards as compared with those abroad deterred most American shipowners from ordering vessels in the United States for the foreign trade; and such as they purchased abroad could not be registered under the flag of the United States. In 1912, therefore, the registry laws were changed so as to permit of the registering of foreign-built vessels not over five years old;[1] and in 1914, after the outbreak of the war in Europe, the five-year age limit was removed and the President was authorized in an emergency to waive the usual requirements regarding the survey, inspection and measurement of foreign-built vessels.[2]

[1] Panama Canal Act, August 24, 1912.

[2] Emergency Registry Act of August 18, 1914.

The shipbuilding industry is at present aided by the Federal Government in three forms: (1) by the exclusion of foreign-built vessels from the rapidly growing coastwise trade,[1] except such as are acquired by or from the United States Shipping Board; (2) by permitting of the free importation of shipbuilding materials; (3) through its naval policy, which has resulted in many profitable government contracts for private American shipyards, and (4) by the extensive program of construction being carried out by the United States Shipping Board to secure tonnage made imperative by the war.

[1] Temporarily opened to foreign vessels as a war measure, by act of October 6, 1917.

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CHAPTER XXIV

GENERAL NAVIGATION LAWS OF THE UNITED STATES

Scope of federal regulation, 362. Navigation laws principally applicable to vessels, 362; and to officers and crews, 363. Miscellaneous navigation laws, 370. Administration of navigation laws, 371. Department of Commerce, 371. Commissioner of Navigation, 371. Steamboat-Inspection Service, 372. Shipping commissioners, 372. Bureau of Fisheries, 373. War Department, 373. Treasury Department, 373. Department of Agriculture, 374. Navy Department, 374. Post Office Department, 374. Independent governmental agencies, 374. References, 375.

THE Federal Government both regulates and aids ocean carriers. The scope of this federal regulation is determined by: (1) The general navigation laws of the United States, many of which are of long standing, apply to ocean transportation and shipping as regards registry and enrollment, public safety, the welfare of crews, and other matters not directly concerned with transportation charges and services; (2) the Shipping Act, the Interstate Commerce Act and various other statutes regulate the charges and services of ocean transportation; and (3) the Shipping Act, the Panama Canal Act and the Sherman Antitrust Act contain important provisions regarding the relations between ocean carriers and between ocean and rail carriers.

THE NAVIGATION LAWS PRINCIPALLY APPLICABLE TO VESSELS

The navigation laws of the United States constitute a volume of over 550 pages, and are so numerous that a comprehensive account of each of the individual statutes is impracticable. They may, however, be divided into a limited number of important groups of laws. One group of navigation laws requires American vessels, excepting harbor craft

and vessels not propelled by sails or motive power of their own, to be documented under the flag of the United States. Vessels engaged in the foreign trade, in the whale fisheries and in the trade with the insular possessions of the United States, except Hawaii and Porto Rico, are registered with the United States Commissioner of Navigation; those of 20 tons gross or upward engaged in the coasting trade or fisheries are officially enrolled; and those of 5 tons but less than 20 tons gross engaged in the coasting and fishing trade are licensed. Foreign-built vessels have, since 1817, been barred from the coastwise trade,[1] and the same was true of the foreign trade until 1912.

The Panama Canal Act of August 24, 1912, applied the policy of free shipping in the foreign trade, excluding, however, all foreign-built vessels over five years old and any not wholly owned by citizens of the United States or by domestic corporations, the president or managing directors of which are American citizens. This policy of free shipping in the foreign trade was further extended in the Emergency Registry Act of August 18, 1914, which removed the former limitation concerning the age of foreign-built vessels, and empowered the President of the United States, in his discretion, to "suspend by order so far and for such length of time as he may deem desirable the provision of law prescribing that all watch officers of vessels of the United States registered for foreign trade shall be citizens of the United States," and likewise to suspend the federal requirements concerning survey, inspection and measurement of foreign-built vessels admitted to American registry. The President, by executive order of September 4, 1914, thereupon suspended the requirements as to survey, inspection, and measurement of foreign-built vessels for a period of two years; and permitted such vessels to retain their watch officers regardless of their citi-

[1] Foreign-built vessels acquired by or from the U. S. Shipping Board may operate in the coastwise trade under the act of September 7, 1916: and it is temporarily opened to all foreign vessels by act of October 6, 1917.

zenship for a term of seven years, providing only that after the expiration of two years all vacancies that occur should be filled by citizens of the United States.

Closely allied to the statutes regarding documenting of vessels are those requiring the official measurement of documented craft. All registered, enrolled and licensed vessels must be measured in accordance with the measurement statutes and rules of the United States as interpreted and enforced by the Commissioner of Navigation. The actual work of measurement is conducted by the admeasurers or surveyors of the United States Customs Service who are located at the principal ports throughout the country. All vessels navigating the Panama Canal, moreover, are required to be measured in accordance with the measurement rules for the Panama Canal that were promulgated by the President November 21, 1913.

A third group of navigation statutes embodies the tonnage tax laws of the United States. Upon entering an American port from any port in North or Central America, the Bahamas, the Bermudas or West Indies, the Caribbean countries, or the north coast of South America, all vessels, whether American or foreign, are, under the amended act of August 1, 1909, required to pay a federal tonnage tax of 2 cents per net registered ton, not exceeding a total of 10 cents per ton annually. All vessels entering from other foreign countries are required to pay a tonnage tax of 6 cents per net ton, not exceeding 30 cents per ton annually. Vessels engaged in the coastwise trade have, for many years, been exempted from the payment of tonnage taxes, and by the act of March 8, 1910, any vessels entering a port of the United States, otherwise than by sea [i. e., from Canada], from a foreign port at which no tonnage taxes or equivalent dues are imposed upon American vessels are similarly exempted. The tonnage tax laws contain various provisions conferring upon the President retaliatory powers in case discriminating dues are levied on American vessels or wares by any foreign country.

An important group of navigation laws regulates the sea-

worthiness and provides for the inspection of vessels. Among these statutes are those that declare it to be illegal for an American vessel knowingly to leave a port of the United States in an unseaworthy condition; those that prescribe watertight bulkheads for seagoing and Great Lakes steamers, and the materials of which the bulkheads are constructed; and those which require the inspection of the hulls of American steamers and of American sailing vessels of more than 700 tons gross carrying passengers, and of other American vessels of over 100 tons gross carrying passengers, by the inspectors of the United States Steamboat-Inspection Service at least once annually. The boilers and boiler apparatus of American steamers are also inspected and tested. Some of the requirements regarding the inspection apply to foreign steamers, but if the inspection laws of their home country approximate those of the United States, they are exempted, except in so far as American inspectors may satisfy themselves that the condition of the foreign vessels is as stated in the certificates they hold.

The federal laws concerning the seaworthiness and inspection of vessels, moreover, include many statutes that define the life-saving appliances, permanent stairways, fire-fighting apparatus, wire tiller ropes, and other safety appliances required on board American vessels and those that regulate the transportation of inflammable and explosive cargoes. Life-saving equipment and requirements are regulated in great detail in the Seamen's Act of March 4, 1915. In this statute Congress enacted into law substantially the requirements recommended by the International Conference that met at London November 12, 1913, to January 20, 1914. In 1910 and 1912, moreover, Congress enacted statutes prohibiting American as well as foreign passenger vessels carrying more than 50 persons from clearing without prescribed wireless telegraph apparatus and a required number of wireless operators. Congress likewise subjected the commercial and private use of radio communication on land as well as on sea to a code of needed regulations. Safety at sea is further promoted by the "international rules of the road" for the prevention of

collisions and similar marine disasters, the principal features of which are embodied in the navigation laws of the United States.

Navigation Laws Principally Applicable to Officers and Crews

The groups of laws mentioned above are concerned chiefly with the regulation of vessels. There are likewise many statutes that primarily affect the officers and crews of vessels. The present requirement concerning the nationality of officers on American vessels is that all so-called watch officers, including the chief engineer and each assistant engineer in charge of a watch on steam vessels, must be citizens of the United States, subject only to the exemption arising from the Emergency Registry Act of August 18, 1914, as applied to foreign-built vessels admitted to American registry. There are no similar requirements concerning the nationality of the crew on board American vessels other than those operating under the mail contract act of 1891. One-fourth of the crews of the latter during the first two years of operation under mail contracts are required to be citizens of the United States; during the next three years this proportion increases to one-third; and during the remainder of the life of their contracts at least one-half of their crew must consist of American citizens.

The number of officers required on board American vessels is determined by inspectors of the United States Steamboat-Inspection Service, the controlling consideration being the safety of navigation. The number of licensed mates on vessels of 1,000 tons gross or over propelled by machinery may not, however, be less than three unless the vessel is engaged in a voyage of less than 400 miles, in which case a minimum of two licensed mates is required. Small engine-propelled vessels of 100, but less than 200 tons gross, are required to have two licensed mates on voyages of over 24 hours' duration, whereas on shorter voyages but one licensed mate is required.

The minimum number of crew on board American vessels is likewise determined by the local inspectors of the Steamboat-Inspection Service. Prior to the Seamen's Act of March 4, 1915, the number of seamen depended upon the type of the vessel, the character of the trade in which it was engaged, the kind of motive power employed, the route of the vessel and the seasons of the year. Since this statute became effective, the inspectors are obliged also to take into account the statutory requirements that officers or able seamen shall be in charge of every life boat, or of every pontoon life raft accommodating more than 15 persons, and that there shall be a certified life-boat man on every life boat or raft accommodating less than 25 persons, and additional life-boat men for life boats or rafts of larger size. The Seamen's Act, moreover, provides that during the first year following its passage all sea-going or Great Lakes vessels of 100 tons gross and over shall have deck crews, at least 40 per cent of whom have a rating of able seamen; that in the second year this proportion shall rise to 45 per cent; in the third year to 50 per cent; in the fourth year to 55 per cent; and thereafter be at least 65 per cent.

Further requirements are contained in the statutes governing the licensing of officers and in the qualifications necessary for obtaining a license as prescribed by the Steamboat-Inspection Service. The Seamen's Act of March 4, 1915, moreover, introduced certain requirements concerning the qualifications of the crew. In order to obtain the rating of able seamen, certain requirements as regards physical condition, ability and experience are imposed, and those members of the crew that hold certificates as life-boat men are required to fulfil certain qualifications as to their training in, and knowledge of, the handling of life boats as well as their ability to understand orders relative to life-boat service.

The provision of the Seamen's Act that has called forth most complaint from vessel owners, particularly on the Pacific coast, is the section providing that not less than 75 per cent of the crew of vessels subject to the act must be "able to

understand any order given by an officer of such vessel." This is the language requirement which makes it difficult for American vessels, officered by men who are citizens of the United States, to employ the relatively inexpensive crews that are commonly employed on vessels navigating the Pacific Ocean. Although this provision applies to foreign as well as to American vessels, its effect upon Japanese vessels is relatively slight, for the officers of Japanese steamships are able to issue orders to Oriental crews in a language that they are able to understand.

Still other navigation laws are those that regulate the wages of seamen on board American vessels. The frequency and time of wage payments are regulated; the payment of wages to seamen in advance and the deduction from seamen's wages to pay persons for the shipment of seamen is prohibited; and the allotment of wages of seamen during their absence is regulated.

Detailed requirements regarding shipping agreements, moreover, are contained in the navigation laws of the United States. The crews of vessels bound from American to foreign ports are, with certain exceptions, shipped before United States Shipping Commissioners of the Department of Commerce. They are shipped in accordance with the terms of shipping agreements that not only specify the number and description of the crew and their respective employments, but also stipulate the nature and probable duration of the intended voyage; the port or country in which the voyage is to terminate; the time at which each seaman is to be on board the vessel to begin work; the amount of wages which he is to receive; any regulations concerning the conduct on board the vessel as to fines or other punishments for misconduct; any stipulations regarding the allotment of wages; and the scale of provisions that are to be furnished to each seaman. When a seaman is engaged by a master of an American vessel in a foreign port in which an American consul or consular agent is located the master is obliged to obtain his sanction and hire the seaman in the presence of such officer. The procuring or

detention of crews by the aid of force, threats, misrepresentations, drugs, or intoxicating liquors is prohibited and strictly penalized.

The provisions and water provided for the crew of American vessels engaged in deep-sea navigation, although specified in shipping agreements, are regulated in detail by the statute specifying the minimum quantities of water, biscuit, salt beef, salt pork, flour, canned meats, butter, etc., that are required by law. The quarters for the crew on board American vessels, except yachts, pilot boats, or vessels of less than 100 tons gross register, are fully regulated by law. The Seamen's Act of March 4, 1915, increased the minimum space per man on new steamships to 120 cubic feet with a floor area of not less than 16 square feet. Each seaman, moreover, is legally entitled to a separate berth, and not more than one berth may be placed above the other. Crew spaces are required to be properly lighted, drained, heated, ventilated, and protected from the weather and sea, and, so far as practicable, to be shut off from the effluvium of cargo or bilge water, and to be kept free from cargo or stores other than the personal property of the crew. Adequate washing facilities are also required by the act of March 4, 1915.

The Seamen's Act regulates the hours of labor on seagoing and Great Lakes vessels by providing that seamen while at sea shall be divided into at least two watches; and firemen, oilers and water tenders into at least three watches. Seamen, moreover, may not be required to work alternately in the fire room and on deck. When an American vessel is in port, a day's work for seamen legally consists of nine hours, exclusive of the anchor watch, and no unnecessary work may be required on Sundays and various designated holidays.

An act of March 3, 1913, regulates the hours of officers by providing that no officer may take charge of a deck watch when leaving port unless he has had at least six hours off duty within the 12 hours immediately prior to the time of sailing. When at sea no licensed officer may be required to remain on duty longer than 12 hours out of 24 except in case

of emergency, and when in port a licensed officer may not be required to remain on duty longer than 9 hours in any 24 hours. The welfare of the crew is further promoted by requirements governing prescribed hospital accommodations on board American vessels.

The laws governing the desertion of seamen have gradually been made less and less strict. Under the Seamen's Act of March 4, 1915, desertion is punishable only by forfeiture of all or any part of the effects that the deserted seaman leaves on board, and all or any part of his wages that he has earned. The navigation laws contain many provisions defining, limiting and regulating the ill treatment of crews by officers; death from negligence or misconduct; permissible and prohibited punishments; mutiny, and other acts of officers and crews.

Miscellaneous Navigation Laws

Besides the navigation laws that primarily concern the vessel or the officers and crews, there are numerous miscellaneous statutes, many of which affect the shipping and traveling public as well as the vessel and its officers and crews. Such, for example, are the numerous statutory provisions regulating the entry and clearance of vessels and cargoes at American ports; those that govern the public health by requiring vessels coming from abroad to carry bills of health issued by American consuls or other approved officers, and by providing for the quarantining of vessels, the detention of crews and passengers at quarantine hospitals, and the suspension of commerce with ports that are affected with contagious disease. The statutes also provide for the enforcement of operating rules on rivers, canals or in harbors and harbor approaches; prohibit the deposit of undesirable substances in navigable waters; limit the speed of vessels and their maximum draft; prescribe anchorage grounds at specified points; and fix the official pierhead lines beyond which wharves or other harbor structures may not be erected. Other miscellaneous statutes define and punish offenses against neu-

trality, and criminal acts such as murder, arson, forgery of ship's papers, barratry and piracy.

Mention may also be made of the federal statutes which empower and instruct the Bureau of Animal Industry in the Department of Agriculture to inspect vessels carrying live stock as to ventilation of the vessels, equipment, adequacy of space and facilities for food and water; and similarly to inspect the live stock and meat products that are exported to foreign countries or imported from abroad. The pure food laws, moreover, as jointly applied by the Treasury Department and the Bureau of Chemistry in the Department of Agriculture, are of special importance to the merchants who import foreign foods and drugs.

An act of June 15, 1917, enacted as a war measure, greatly increased the control of the Federal Government over exports and imports by providing that they shall, during the war, be carefully supervised and controlled by the President, who will act through appropriate departments and bureaus. The control is exercised through the Bureaus of Imports and of Export Licenses under the War Trade Board appointed by the President.

Administration of the Ocean Navigation Laws

From the facts presented in this chapter as well as from the table contained in Chapter XXIII it is obvious that many executive departments and bureaus are concerned with the regulation of ocean navigation and shipping. The Commissioner of Navigation, who is at the head of the Bureau of Navigation, has many powers and performs numerous duties that are accurately summarized as follows in a special report on *Navigation Laws*[1] recently issued by the Bureau of Foreign and Domestic Commerce:

1. The general superintendence of the merchant marine and merchant seamen of the United States, so far as vessels and sea-

[1] Page 153.

men are not, under existing laws, subject to any other officer of the Government.

2. The decision of all questions relating to the issue of registers, enrollments, and licenses of vessels, and to the filing and preserving of these documents.

3. Supervision of the laws relating to the admeasurement of vessels, the assigning of signal letters, official numbers, and all questions of interpretation growing out of the execution of the laws on these subjects.

4. Questions of interpretation relating to the collection of tonnage tax.

5. Preparation annually of list of vessels of the United States merchant marine with details as to official number, signal letters, names, rig, tonnage, home port, etc.

6. The preparation of annual reports to the Secretary of Commerce regarding increase of vessels. In this connection he is required to report annually "such particulars as may, in his judgment, admit of improvement or may require amendment" in the navigation laws of the United States.

7. Power to change names of vessels of the United States under such restrictions as are or may be prescribed by act of Congress.

At the head of the Steamboat-Inspection Service is a Supervising Inspector-General, and under him there are ten supervising inspectors, each of whom has general supervision of the work of inspection in an assigned district. The Supervising Inspector-General and the supervising inspectors, moreover, constitute a board that meets at least once a year at Washington to determine the limits of the districts, and the various regulations that are necessary to enforce the work of inspection effectively. At the principal ports throughout the country are boards of local inspectors whose work is supervised by the inspectors. It is the local inspectors of hulls and boilers who actually perform the work of hull and boiler inspection.

In the Department of Commerce, moreover, are the Shipping Commissioners, who are directly responsible to the Secretary of Commerce. They supervise the shipping and discharge of seamen; keep a register of their names and char-

acter; provide means for securing their presence on board at the proper time; facilitate the making of apprenticeships; and "perform such other duties relating to merchant seamen or merchant ships as are or may hereafter be required by law."[1] In the Department of Commerce, furthermore, is the Bureau of Fisheries which, though primarily engaged in the work of developing the fishing industries, is also a regulative body in so far as it controls the Alaskan seal fisheries.

Each of the three bureaus or agencies listed under the War Department in the table in the preceding chapter performs certain regulative functions. The Corps of Engineers establishes harbor or pierhead lines and administers the laws prohibiting the obstruction of navigation. The Governor of the Panama Canal administers the canal and the Canal Zone, as provided for in the Panama Canal Act of August 24, 1912. The Bureau of Insular Affairs is the medium through which the Secretary of War exercises general supervision over the government of the Philippine Islands and Porto Rico. Both of these insular possessions are of course primarily administered through the governmental machinery that has been provided for them by law.

The Customs Service in the Treasury Department has immediate charge of the entry and clearance of vessels and cargoes, the collection of duties and tonnage taxes, the survey and inspection of cargoes, the measurement of vessels, and the bonding of imported wares. The Revenue Cutter Service of the United States Coast Guard coöperates with the Customs Service in the boarding of vessels, collection and security of revenue, and in the enforcement of the customs regulations. The Bureau of Public Health of the Treasury Department has charge of the marine hospital service and the establishment of quarantines. The Secret Service is generally instrumental in the enforcement of the navigation and shipping laws in the same way that it is concerned with the laws governing other fields of activity.

[1] Department of Commerce, *Navigation Laws* (Special Agents Series, No. 114), p. 155.

In the Department of Agriculture are the Bureau of Animal Industry and the Bureau of Chemistry, which are concerned respectively with the inspection of exported and imported live stock, meats and meat products, and with the enforcement of the federal food and drug laws in the foreign as well as in the domestic trade.

Officials in the Navy Department are assigned to ports of entry to coöperate with the port collectors of the Customs Service, and other naval officers inspect vessels of the first three classes operating under the mail contract act of 1891. Commanding officers of a fleet, moreover, act as consuls on the high seas and at foreign ports where no resident consuls are stationed. The Navy Department, jointly with the War Department, is entrusted with the enforcement of the laws of neutrality when the government requires naval or military action for that purpose.

The Post Office Department through its Division of Foreign Mails supervises the foreign mail services of ocean carriers, among its duties being the inspection of those vessels that are awarded contracts under the acts of 1891 and 1917. Among the large number of widely varying duties performed by the Consular Service of the State Department is the enforcement of the navigation laws in so far as they require enforcement in foreign ports. The Department of Justice is generally concerned with the enforcement of laws applicable to ocean transportation and shipping. The Bureau of Immigration of the Department of Labor is in charge of the immigration laws, and supervises the joint arrangements that have been entered into by rail and ocean carriers for the through transportation of immigrants to interior destinations.[1] The governors of Alaska and the Philippine Islands, who report to the Secretary of the Interior, are concerned with the administration of the navigation laws in so far as they are applicable to those territories.

Several agencies independent of the executive departments and bureaus just mentioned are concerned with the adminis-

[1] *See* chap. xiii, p. 194.

tration or enforcement of the navigation laws. Congress enacts statutes that regulate ocean transportation and shipping, the Senate ratifies the treaties which directly or indirectly are applicable, and Congress, through its committees, holds hearings and conducts investigations. The federal judiciary, through the courts listed in the table in the preceding chapter, interprets the navigation laws, and provides the machinery by which those who violate the laws may be brought to trial. The Interstate Commerce Commission and the United States Shipping Board are important administrative bodies, but are primarily concerned with the regulation of charges and services and with the relations between carriers, rather than with the general navigation laws that have thus far been considered. The War Trade Board through four bureaus, of Imports, Exports, Transportation, and Enemy Trading, will, for the duration of the present war, exercise control over exports and imports, enemy trading and the use of shipping in the foreign trade of the United States.

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CHAPTER XXV

FEDERAL REGULATION OF OCEAN RATES, SERVICES AND CARRIERS' INTERRELATIONS

Regulation through navigation laws, 376. Passenger and immigration laws, 376. Regulation of charges and services under Interstate Commerce Act, 377; and under the Shipping Act of September 7, 1916, 380. Regulation of relations between carriers, 385. Application of Shipping Act, 385; of Sherman Antitrust law, 386; and of Panama Canal Act, 387. References, 388.

UNTIL the enactment of the Shipping Act of September 7, 1916, the charges and public services of ocean carriers were subject to but limited federal control. Ocean charges and services were regulated to a far less extent than those of American railroads, although they were not entirely free from federal regulation. Some of the navigation laws mentioned in the preceding chapter regulated certain phases of the public service of ocean vessels either directly or indirectly. There were and are the laws concerning the inspection and seaworthiness of vessels, the carriage of live stock, meat and dairy products, the adulteration of foods, the transportation of inflammable articles and explosives; also laws as to quarantine, bills of health, and life-saving equipment. All of these statutes, however, concern primarily the safety of navigation, the public health and similar matters rather than the charges and services of ocean carriers.

PASSENGER AND IMMIGRATION LAWS

The Passenger Act of 1882 subjects an important part of the public service of ocean carriers to direct federal control. This act, as amended to date, regulates the steerage passenger

traffic by limiting the number of such passengers that a vessel may carry, and by prescribing reasonable accommodations and the minimum space per passenger on steerage decks. It also regulates light and air, medical attention, food, discipline and cleanliness, the privacy of steerage passengers, the carriage of explosives and live stock on vessels transporting steerage passengers, the carriage of cargo and stores on steerage decks, the payment of fees in case of death of steerage passengers, and the keeping of a passenger list. Vessels are inspected with a view to the enforcement of this act under the direction of the United States customs collectors.

The service and traffic of vessels carrying steerage passengers have also for many years been regulated by the United States immigration laws. Certain provisions of these statutes prohibit the entry of excluded classes of immigrants, the illegal landing of alien passengers, and the illegal encouragement of the immigration of aliens into the United States. Ocean carriers are required to deport all aliens brought to the United States in violation of the immigration laws and are, with certain exceptions, obliged to pay a head tax of $8 for every accepted alien immigrant.[1]

Regulation of Charges and Services Under Interstate Commerce Act

The principal federal statute applicable to the charges and services of carriers by water prior to the passage of the Shipping Act was the Interstate Commerce Act of 1887 as amended to date. This statute is still applicable to the same extent that it applied before the enactment of the Shipping Act, for the latter statute (section 33) expressly provides that "This Act shall not be construed to affect the power or jurisdiction of the Interstate Commerce Commission, nor to confer upon the board concurrent power or jurisdiction over any matter within the power or jurisdiction of such commission; nor shall this Act be construed to apply to intrastate commerce."

[1] Immigration Act of February, 1917.

The Interstate Commerce Act does not apply to the port-to-port business of carriers by water, but it does apply to interstate traffic and traffic between the United States and adjacent foreign countries when handled partly by rail and partly by water under "a common control, management or arrangement for a continuous carriage or shipment." As amended by section 11 of the Panama Canal Act of 1912, the scope of the Interstate Commerce Act and the jurisdiction of the Interstate Commerce Commission are extended so as to include any interstate traffic that is handled partly by rail and partly by water. In the foreign trade with overseas countries, i. e., with foreign countries that are not adjacent to the United States, the Interstate Commerce Commission has no jurisdiction either over the port-to-port business of ocean carriers or over such business as they conduct in connection with American railroads.

The limited jurisdiction of the Interstate Commerce Commission over carriers by water is, however, of considerable importance, because much interstate traffic is actually handled over rail-and-water routes. The principal powers of the Commission in this regard may be summarized as follows: The Commission has power to establish through routes and joint rates even though certain through rail-water routes have already been established voluntarily; it may establish maximum joint rates and determine "all the terms and conditions under which such lines shall be operated in the handling of the traffic embraced"; it may establish maximum proportional rates to and from ports to which such traffic is brought or from which it is taken by the coastwise water carriers; it may order the establishment of physical connections between rail and water carriers; it may determine the rate division between rail and water carriers that operate over a through rail-water route; it may order the issuance of through bills of lading in domestic interstate rail-water traffic. The Commission, moreover, has the power to regulate water terminal facilities operated in connection with interstate shipments made partly by rail and partly by water, and all ferries operated in connection with

such rail-water traffic are specifically placed within the scope of the Interstate Commerce Act.

It will be noted that none of these powers directly affects the port-to-port charges or services of coastwise or other domestic carriers by water. Their port-to-port business comes within the scope of the Interstate Commerce Act in but two principal respects: (1) It has been decided by the U. S. Supreme Court [1] that section 20, which empowers the Commission to prescribe a uniform system of accounts and to call for statistical reports, applies not only to the traffic with carriers by water handled in connection with railroads, but to their entire traffic, port-to-port as well as joint rail-water traffic. (2) Section 11 of the Panama Canal Act, which amends the Interstate Commerce law, contains a clause that provides for the future regulation of the port-to-port as well as the rail-water traffic of all carriers by water that are owned or controlled by railroads with which they are or may be in competition. Such ownership by railroads may, under certain conditions, continue with the consent of the Interstate Commerce Commission, but

> in every case of such extension, the rates, schedules and practices of such water carrier shall be filed with the Interstate Commerce Commission and shall be subject to the act to regulate commerce and all amendments thereto in the same manner and to the same extent as is the railroad or other common carrier controlling such water carrier or interested in any manner in its operation.

The provisions of the Interstate Commerce Act and the powers of the Commission mentioned above apply to the coastwise or other interstate domestic services and charges of carriers by water. The services and charges of ocean carriers engaged in foreign trade are not subject to such control, except in the case of traffic handled partly by rail and partly by water between the United States and adjacent foreign coun-

[1] *Goodrich Transit Co. v. Interstate Commerce Commission*, 224 U. S. 194, April 1, 1912.

tries when both rail and water carriers are "under the common control, management, or arrangement for the continuous carriage or shipment." The Interstate Commerce Commission has repeatedly denied any power to establish through routes, joint rates and through bills of lading between rail and ocean carriers engaged in the oversea trade with non-adjacent foreign countries. The Commission has regulated ocean carriers in the overseas foreign trade only indirectly by regulating the railroads that make connections with the ocean carriers, and by regulating the water terminal facilities that are used by the railroads. Control by the Commission has been confined mainly to the prevention of undue discrimination on the part of rail carriers engaged in the foreign trade.

The ability of the Commission to regulate ocean shipping in this indirect way was somewhat enhanced by the provisions of the Panama Canal Act of 1912, which provides as follows:[1]

> If any rail carrier subject to the act to regulate commerce enters into arrangements with any water carrier operating from a port in the United States to a foreign country through the Panama Canal *or otherwise* for the handling of through business between interior points of the United States and such foreign country, the Interstate Commerce Commission may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country.

Regulation of Charges and Services Under the Shipping Act

The charges and services of ocean carriers in their port-to-port business being practically free from control by the Interstate Commerce Commission, it was deemed necessary to enact further legislation. The greater part of the U. S. Shipping

[1] For a detailed account of the powers of the Interstate Commerce Commission over the services and charges of carriers by water, see article by G. G. Huebner in *Annals of American Academy*, September, 1914, pp. 23-36.

Act of September 7, 1916, applies expressly to the services and charges in the port-to-port business. Even this act, however, draws a sharp distinction between the coastwise and the foreign trade. Certain of its provisions apply alike to both, although others are more stringent and comprehensive for coastwise than for overseas traffic.

A "common carrier by water" is defined as a common carrier by water engaged either in foreign or in interstate commerce "on the high seas or the Great Lakes on regular routes from port to port." Regarding such carriers by water, the act (section 14 [4]) makes it illegal to

> make any unfair or unjustly discriminatory contract with any shipper based on the volume of freight offered, or unfairly treat or unjustly discriminate against any shipper in the matter of (a) cargo space accommodations or other facilities, due regard being had for the proper loading of the vessel and the available tonnage; (b) the loading and landing of freight in proper condition; or (c) the adjustment and settlement of claims.

It is likewise unlawful both in the foreign and the coastwise or Great Lakes trade for any common carrier by water to in any way give an undue or unreasonable preference or charge to particular persons, localities or kinds of traffic; to pay rebates to any person either directly or by means of false billing, classification, weighing or by any other unjust devices; or to in any way influence marine insurance companies or underwriters to discriminate between competing vessels or cargoes in the rate of insurance charged. It is also unlawful both in the foreign trade and in interstate commerce for any carrier or person subject to the Shipping Act to disclose any information detrimental to any shipper or consignee unless consent has been obtained, or unless in response to a legal process issued under proper authority.

All such common carriers by water may, moreover, be obliged to file with the United States Shipping Board periodical or special reports, accounts, records, rates, charges or memoranda of any facts and transactions. All are obliged

to establish and observe "just and reasonable regulations and practices relating to or connected with the receiving, handling, storing, or delivering of property," and when the board finds that any such regulation or practice is unjust or unreasonable, it may substitute for it such regulation or practice as it regards just and reasonable.

Certain provisions of the Shipping Act apply only to common carriers by water in interstate commerce. Such are the provisions that require domestic carriers by water to file with the Shipping Board and keep open to public inspection all their maximum fares, rates and charges, local as well as those established jointly with other carriers by water. Such also is the provision which prohibits an increase in the charges of domestic carriers by water except with the approval of the board and after ten days' public notice; and the provision that prohibits the increase of competitive charges that had been reduced below a fair remunerative basis with the intent of driving out or injuring a competitive carrier by water, unless the Shipping Board finds that the proposed increase is justified by change in conditions other than a change due to the elimination of competition.

The Shipping Board, moreover, has power to prescribe the form of tariffs and time within which they shall be filed; it may, for good cause, waive the ten days' notice mentioned above; and whenever it "finds that any rate, fare, charge, classification, tariff, regulation, or practice demanded, charged, collected or observed by such carrier is unjust or unreasonable, it may determine, prescribe, and order enforced a just and reasonable maximum rate, fare, or charge, or a just and reasonable classification, tariff, regulation, or practice."

Carriers by water in the foreign trade are not required to file tariffs with the Shipping Board, nor are they obliged to obtain the approval of the board before increasing their charges, and increases in rates are not contingent upon a ten days' public notice. They are, however, prohibited from unjustly discriminating between shippers or ports, and from collecting any charges that are "unjustly prejudicial to exporters

of the United States as compared with their foreign competitors." When any such unjust charge is demanded or collected, the U. S. Shipping Board may "alter the same to the extent necessary to correct such unjust discrimination or prejudice and make an order that the carrier shall discontinue demanding, charging, or collecting any such unjustly discriminatory or prejudicial rate, fare, or charge." The board may not, however, reduce a rate in the foreign trade unless it involves unjust discrimination or is prejudicial to American exporters as compared with those of foreign countries. None of the provisions affecting the foreign trade is applicable to tramp vessels, for section 1 of the act expressly excludes such vessels from the term "common carrier by water in foreign commerce."

The United States Shipping Board that administers the Shipping Act—i. e., the provisions that affect the charges and services of carriers by water, those that regulate conferences, agreements and pools of ocean carriers, and those concerning the development of the United States merchant marine—consists of five commissioners appointed by the President with the consent of the Senate. The original commissioners were appointed for terms ranging from two to six years, but thereafter the term of office is to be six years.

Sworn complaints may be filed with the Shipping Board by any person; and, as in case of the Interstate Commerce Commission, the board may also institute investigations of any violation of the Shipping Act upon its own motion; it may, by subpœna, compel the attendance of witnesses and the production of books, papers, documents and other evidence from any place in the United States; and it may, after due hearings, issue orders, which, with the exception of orders involving the payment of money, may be enforced by obtaining a writ of injunction or other proper process, mandatory or otherwise, from a federal district court. Application for such injunction or other proper process may be made by the Shipping Board, by any injured party, or by the United States Attorney General. Reparation awards and orders for the payment of

money may be enforced by filing petitions or suits in a federal district court, or in any court of general jurisdiction of a state, territory, district or possession of the United States having jurisdiction of the parties concerned. Judgment may be entered in favor of any plaintiff against a defendant who refuses to pay money awarded by the board.

Numerous penalties against violation of the provisions of the act are provided in connection with specific sections, and a general penalty not exceeding $5,000 is provided in case of violations applicable to all provisions in connection with which a different penalty is not provided. The last section of the act, moreover, authorizes the Secretary of the Treasury to refuse clearance to any vessel engaged either in the foreign or coastwise trade whenever he has satisfactory reason to believe that the owner or master of the vessel—although space accommodations are available, and although the cargo is offered in good condition and the proper freight transportation charges are tendered—refuses or declines to accept cargoes destined to ports that are regularly served by the vessel.

The orders of the Shipping Board are subject to review by the federal courts in the same manner that orders of the Interstate Commerce Commission may be reviewed.

Since the Interstate Commerce Act, under certain conditions, applies to water transportation as it did before the passage of the Shipping Act, it follows that many carriers by water are now subject to control by two distinct administrative bodies. Although the Interstate Commerce Commission may not regulate the port-to-port charges of coastwise or ocean carriers, it is obvious that port-to-port charges and the charges via rail-water routes are interrelated. It is also well established that the port-to-port rates of carriers by water and the all-rail rates of railroad companies are, in many instances, closely interdependent. The former, however, are subject to control by the Shipping Board, while the latter are exclusively regulated in interstate commerce by the Interstate Commerce Commission. It is, furthermore, not at all times clear whether a particular shipment constitutes purely port-

to-port traffic or traffic that is handled partly by rail and partly by water. Concerns that conduct a business of forwarding, or furnishing wharfage, dock, warehouse, or other terminal facilities in connection with a common carrier by water are subject to the provisions of the Shipping Act; yet concerns of this kind when handling interstate traffic moving partly by rail and partly by water are subject to the provisions of the Interstate Commerce Act. A conflict of jurisdiction as between the Shipping Board and the Interstate Commerce Commission may arise unless the two administrative bodies work in close and friendly coöperation.

Federal Regulation of Relations Between Carriers

In addition to the navigation laws of the United States and the various statutory provisions regulating the services and charges of carriers by water, there are a number of important statutes that regulate the relations between ocean carriers and between ocean and rail carriers. The Shipping Act of September 7, 1916, just referred to in connection with the regulation of services and charges is also of principal importance in connection with conferences, agreements, pools and other arrangements between ocean carriers. Having discovered that such relations between ocean carriers are general throughout the greater part of the maritime world, Congress wisely decided that the Sherman Antitrust law should not apply in the future.

Section 15 of the Shipping Act expressly provides that all agreements, modifications or cancellations approved or ordered by the United States Shipping Board shall be excepted from the provisions of the Sherman Antitrust Act and the antitrust provisions contained in the tariff law of 1894. Instead it provides that all copies of agreements, pools, understandings, or other conference arrangements of ocean carriers subject to the act, shall be filed with the Shipping Board; and it empowers the board to disapprove, cancel, or modify any such agreements or arrangements. It provides that "agreements

existing at the time of the organization of the board shall be lawful until disapproved by the board," and "that it shall be unlawful to carry out any agreement or any portion thereof disapproved by the board." The act wisely substituted the policy of regulating conference arrangements for the previous policy of prohibition under the federal antitrust laws.

Section 14 of the act, however, explicitly prohibits certain objectionable features of the ocean conference arrangements. It prohibits the payment of deferred rebates, the use of fighting ships, and retaliation by reducing, or threatening to reduce, space accommodations, or by resorting to other discriminating or unfair methods against shippers who patronize other carriers or who file complaints with the Shipping Board. This section also declares unlawful any unfair or unjustly discriminatory contracts with shippers based upon the volume of freight offered, and any unfair treatment or discrimination against shippers in the matter of cargo space, loading and discharging of freight in proper condition, or in the matter of adjusting and settling claims. Any violations of section 14 which prohibits the objectionable practices referred to are punishable by a fine not exceeding $25,000 for each offense.

Consolidations of ocean carriers by stock ownership, merger, outright purchase, or otherwise than by means of agreements, pools, understandings and other conference arrangements, are not specifically included within the Shipping Act. It is therefore probable that the federal antitrust laws are applicable to any such consolidations as result in unreasonable restraint of trade. The federal antitrust laws referred to are the Sherman Act of 1890, the antitrust provisions of the tariff law of 1894, and the Clayton Act of 1914. Section 11 of the Panama Canal Act of 1912, moreover, contains a special provision which prohibits any vessel that is owned, chartered, operated, or controlled by any concern that is doing business in violation of the federal antitrust laws from navigating the Panama Canal.

The conditions under which the antitrust laws are applicable to ocean steamship consolidations have not thus far been de-

fined by the United States Supreme Court. There is reason to believe, however, that the application of these statutes is not dependent upon the place of incorporation of the consolidated companies nor upon the foreign or interstate character of the traffic in which they are engaged. The United States Supreme Court (*U. S. v. Pacific and Arctic Rwy. and Nav. Co., et al.,* 228 U. S. 87, April 7, 1913) ruled that "while the United States may not control foreign citizens operating in foreign territory, it may control them when operating in the United States in the same manner as it may control citizens of this country." (See also *U. S. v. Great Lakes Towing Co., et al.,* 208 Fed. Rept. 733, Feb. 11, 1913.)

The relations between ocean carriers and the railroads are governed principally by the provisions of the Panama Canal Act of 1912. Section 11 of that statute which amends the Interstate Commerce law, affects the relations between carriers by water and rail carriers in two principal respects: (1) It prohibits any railroad-owned or controlled carrier by water which is or may be competitive from passing through the Panama Canal. The act confers jurisdiction on the Interstate Commerce Commission to determine questions of fact as to competition or possible competition. (2) The Panama Canal Act prohibits the railroad ownership or control of carriers by water that compete or may compete for traffic against the proprietary railroads anywhere in the coastwise, Great Lakes or other interstate commerce of the United States, unless it may be shown that such railroad-owned carrier by water is "operated in the interest of the public and is of advantage to the convenience and commerce of the people," *and* also that the future railroad ownership or control will "neither exclude, prevent, nor reduce competition on the route by water under consideration." It is the Interstate Commerce Commission again that is authorized to determine questions of fact as to the actual existence or possibility of competition. In this case, however, the Commission has greater latitude, for it is authorized to determine whether in its opinion the railroad-owned or controlled carriers by water are operated in the interest of the

public, whether they are of advantage to the convenience and commerce of the people and whether or not the fact of railroad ownership or control excludes, prevents or reduces competition. If these facts are established in favor of the railroad owning or controlling the competitive carrier by water, the Commission may authorize such ownership or control to continue in the future, subject, however, to the proviso that

> in every case of such extension, the rates, schedules, and practices of such water carrier shall be filed with the Interstate Commerce Commission and shall be subject to the act to regulate commerce and all amendments thereto in the same manner and to the same extent as the railroad or other common carrier controlling such water carrier or interested in any manner in its operation.

The Commission has, in various instances, required the railroads to dispose of their ownership or control of competitive carriers by water; in other instances, it has permitted the control or ownership by railroads to continue.

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CHAPTER XXVI

AID AND REGULATION BY THE STATES AND MUNICIPALITIES

State and federal powers over commerce, 389. Decisions of Supreme Court defining these powers, 389. State and municipal aid, 391. Control of pilots and pilotage, 393. Health and quarantine control, 395. Comparative statement of pilotage charges, 396. Regulation of water terminals, 399. Police supervision, 401. References, 402.

THE power to regulate commerce with foreign nations, and among the states, is vested in the National Government by the Constitution, which also provides that "no State shall, without the consent of the Congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws," and also that "no State shall, without the consent of Congress, lay any duty of tonnage."

The clauses seem very clear and definite; but a long line of decisions of the Supreme Court has been necessary to define the limits of federal and state authority over commerce. At the time of the adoption of the Constitution each state in its own way was aiding and regulating commerce; and instead of immediately ceasing to exercise authority over interstate commerce, the states have abandoned commercial regulation gradually as the Federal Government has assumed the powers it possesses.

Fortunately for the development of the United States, the powers of Congress over interstate commerce were broadly interpreted by Chief Justice Marshall in 1824, in the celebrated case of *Gibbons v. Ogden* (9 Wheaton, 1), in which the Supreme Court held that a vessel enrolled by the Federal Government to engage in coastwise interstate commerce could not be required to obtain a state license. It was held that

the United States, and not the states, could determine the condition under which interstate commerce may be carried on. Three years later, in *Brown v. Maryland* (12 Wheaton, 419), the Supreme Court annulled a law of Maryland that imposed a license tax of $50 on importers of foreign articles. The court argued that this was a tax, that it regulated international commerce, and was unconstitutional. The states cannot compel a vessel enrolled by the Federal Government to take out state registration papers. A law passed by Alabama in 1854, requiring special state registration, was held by the Supreme Court in 1860 (*Sinnot v. Davenport,* 22 Howard, 227) to be unconstitutional.

A state may lay a tax on the property value of the vessels owned by its citizens. This tax, however, must be levied on the property of the ship, and not upon its enrolled or registered tonnage. In 1866 Alabama imposed a tax of $1 per ton upon all vessels operating upon the navigable waters within the state; but the Supreme Court in 1871 annulled the law (*Cox v. The Collector,* 12 Wallace, 204). Nor can a state authorize a board of port wardens to impose fees upon ships entering its ports. In 1867, in *Steamship Company v. Port Wardens* (6 Wall, 31), this point was decided by the Supreme Court. The state, furthermore, is without authority to impose an occupation tax upon shipping. Louisiana, in 1870, empowered New Orleans to levy a tax upon all persons pursuing any trade or profession, and the city placed a tax of $500 on persons or corporations owning and running towboats to and from the Gulf of Mexico. A man by the name of Cooper, owning two steam propellers, enrolled at New Orleans under the laws of the United States, refused to pay the tax, and he was sustained by the Supreme Court of the United States in 1884, for the reason that the state could not require a tax to be paid for the privilege of employing vessels in a manner authorized by the license of the United States (*Moran v. New Orleans,* 112 U. S. 69).

The general power of the Federal Government over navigable waterways and navigation was also clearly determined by

the U. S. Supreme Court in *Gilman v. Philadelphia* (3 Wallace, 713), in which the court held as follows:

Commerce includes navigation. The power to regulate commerce comprehends the control for that purpose, and to the extent necessary, of all the navigable waters of the United States which are accessible from a State other than those in which they lie. For this purpose they are the public property of the Nation, and subject to all the requisite legislation by Congress. This necessarily includes the power to keep them open and free from any obstruction to navigation, interposed by the State or otherwise; to remove such obstructions when they exist; and to provide, by such sanctions as they may deem proper, against the occurrence of the evil for the punishment of the offenders. For these purposes Congress possesses all the powers which existed in the States before the adoption of the National Constitution, and which have always existed in the Parliament in England. It is for Congress to determine when its full power shall be brought into activity and as to the regulations and sanctions which shall be provided.

These references to some of the more important decisions interpreting the powers of the national and state governments to regulate interstate and foreign commerce show that the federal power is plenary; that vessels enrolled by the United States for the coastwise trade cannot be burdened or restricted by state laws regarding registration, licenses, fees, or tonnage taxes. The state may tax ships as property; it may tax navigation companies on their capitalization, franchises and income, or in accordance with other taxes levied on corporations; it may also tax terminal properties, but it may not levy tonnage taxes as such and it may not tax commerce except to the extent that it "may be absolutely necessary for executing its inspection laws."

State and Municipal Aid

The power to regulate includes the power to aid, and the United States Government has pursued a liberal policy in its harbor improvements. Before 1789 the states carried on such

improvements as were made to the channels and harbor areas of the ports; and for some time after 1789 the states continued to execute these works, in accordance with plans approved by the National Government. To raise the funds to meet the expenses of harbor works, the states were permitted by Congress to levy tonnage taxes. For instance, Congress passed an act in 1806 enabling the Board of Port Wardens for the port of Philadelphia to impose a tax of four cents a ton on all vessels clearing from the port, the receipts of the tax to be used in improving the navigation of the Delaware River and in constructing piers. Congress began in 1822 to make regular appropriations for harbors; before that time Congress did little more than to maintain the lighthouses.

The large appropriations by Congress for the improvement of harbors began to be necessary about 1870, as the result of the use of vessels of deep draft. Since then ships have steadily increased in size, the volume of maritime trade has grown rapidly, the number of seaports has become larger, and the expenditures required to modernize and maintain harbors have risen year by year.

In 1905 there was much said in Congress in favor of requiring the states having the largest ports to share a part of the expense of harbor improvements. The appropriation of $500,000 made by Congress that year for the completion of the 30-foot channel in the Delaware River was made contingent upon an appropriation of $750,000 being made by the State of Pennsylvania. Half the $750,000 was furnished by the State Government, and the other half by the city of Philadelphia. Since 1905, the dual plan of harbor improvement through national and state appropriations has not been generally applied, but a tendency to make federal aid contingent upon state or municipal contributions is well developed. At Savannah, Ga., for example, a federal appropriation for the improvement of the Savannah River was made contingent upon the improvement by the city of a tract of waterfront property that had been offered to the city by private organi-

zations. At Tampa, Fla., it was stipulated in connection with a federal appropriation that the municipality should acquire and develop a waterfrontage to at least 1,400 feet on a specified new channel, and that the remainder of the frontage on both sides for a distance of 700 feet back should be controlled by the municipality so as to insure the proper use of all terminals on equal and reasonable terms. It was also stipulated that all terminal charges should be subject to the approval of the Secretary of War. An appropriation for the improvement of the Providence River, in Rhode Island, similarly was made contingent upon the completion of certain public terminal and other permanent public harbor improvements by the state and municipality.[1]

Control of Pilots and Pilotage

Control over pilots and pilotage is exercised both by the states and the Federal Government. The regulation of pilotage by the states, however, is by permission of Congress. As the several states had detailed pilotage laws in 1789, Congress confirmed those laws by providing that "until further provision is made by Congress all pilots in bays, inlets, rivers, harbors, and ports shall continue to be regulated by the laws of the States wherein such pilots may be, or with such laws as the States may respectively enact for the purpose."

Congress has been obliged to supplement the state pilotage laws to prevent interstate friction. A vessel entering a river or port forming the boundary between two states is required to take the first pilot offering his services; the pilots of one state may not be preferred over those of another. Congress has also prohibited a state from discriminating against interstate commerce by making the pilotage charges less for a vessel when its trip is between ports of the state than when it is sailing between ports in different states. The navigation laws of the United States require that the captain and mates of all steamers enrolled for the coastwise service shall qualify as

[1] U. S. Bureau of Foreign and Domestic Commerce, *Ports of the United States*, p. 25.

pilots and be licensed by the United States. The states are prohibited from requiring the pilots of steam vessels to secure a state license in addition to the one granted by the United States. A coastwise steamer may enter a port without taking a pilot; but a sailing vessel cannot do so, even though the sailing vessel is towed into port by a steam tug on which there is a licensed pilot. This seems an unnecessary discrimination against the sailing vessel.

The control over pilots and pilotage exercised by the states may be illustrated by referring to Philadelphia and New York City. One of the duties of the Board of Commissioners of Navigation for the Delaware River [1] is the control of pilotage on the entire river and its navigable tributaries within the state of Pennsylvania, and the examination, licensing and control of pilots. The rates of pilotage are fixed by an act of the Pennsylvania state legislature of March 30, 1899. From the capes of the Delaware to the city of Philadelphia, or in the opposite direction, the official rates of pilotage per half foot of vessel draft are $2 for vessels having a draft of 12 feet or less, and $2.50 for vessels having a draft in excess of 12 feet. When, however, a pilot speaks an inward-bound vessel at points east of the Five-Fathom bank light-ship or north of Hereford Inlet Lighthouse, or south of Fenwick's Island Lighthouse, these pilotage rates are increased by 10 per cent. If a vessel is not spoken until it arrives inside of a line drawn from Cape May Light to Cape Henlopen Light, a deduction of 10 per cent is made from the regular pilotage charges. Pilotage is compulsory for all vessels excepting those engaged in the coastwise trade, inward-bound vessels not spoken outside of the capes, and vessels "solely coal laden with coal mined in the United States." [2]

The rates of pilotage at the port of New York are similarly fixed by acts of the state legislature, mainly by the consolidation act of 1882, amended to date.[3] Inward pilotage rates

[1] *See* chap. x, p. 133.

[2] Pennsylvania Act of March 29, 1903, amended June 8, 1907.

[3] Act of April 15, 1847; laws of 1853, ch. 467, as amended in 1854, 1863, 1867; laws of 1882, chs. 29, 410; laws of 1909, chs. 42, 581.

through New York Bay via Sandy Hook, from April 1 to November 1, are $4.88 per foot for vessels drawing 21 feet or more; for a draft from 6 to 14 feet, the rate is $2.78; from 14 to 18 feet, $3.38 per foot; and from 18 to 21 feet, $4.13 per foot. Outward pilotage rates through New York Bay are lower but similarly range from $2.02 per foot for vessels having a draft of less than 14 feet, to $3.56 per foot for vessels with a draft of 21 feet or over. These rates, both inward and outward, are increased during the winter months from November 1 to April 1, inclusive, to the extent of $4 for each pilotage. A different code of pilotage charges applies through Hell Gate, where pilotage rates vary in accordance with the class of vessel. Charges for inside pilotage through Hell Gate are $1 per foot for sloops and schooners, and $1.25 per foot for other vessels, while outside pilotage charges range from $1.50 to $1.75 per foot. During the winter months an additional charge of $2 may be made for ships, barks, or brigs, and of $1 for schooners or sloops.

The combined inward and outward pilotage charges paid by vessels of specified drafts at fifteen Atlantic and Gulf ports are clearly shown in the accompanying table (No. 17), which was compiled by Mr. G. M. Jones, Special Agent of the Bureau of Foreign and Domestic Commerce.

Health and Quarantine Control

In the enforcement of health and quarantine regulations, also, both the state and federal governments participate. Each has the power of taking such measures as may be necessary to protect the health of its citizens. Congress has power to subject interstate and international travel and traffic to such rules and restrictions as the welfare of the country may require; and while each state is giving increasing attention to the prevention of diseases and epidemics within its borders, the tendency is to look more and more to the United States Bureau of Public Health to regulate commerce to prevent the outbreak and spread of diseases. The National Government can

TABLE 17.—PILOTAGE (INWARD AND OUTWARD), AT UNITED STATES PORTS [1]

Draft of Vessel	Portland, Me.	Boston	New York	Philadelphia[2]	Baltimore[3]	Norfolk	Wilmington, N. C.	Port of Charleston	Savannah	Jacksonville	Tampa	Pensacola	Mobile	New Orleans[4]	Galveston[5]
10 feet	$37.50	$44.70	$48.00	$80.00	$70.00	$70.00	$42.16	$60.00	$54.00	$55.00	$60.00	$80.00	$60.00	$105.00	$80.00
11 feet	41.25	49.94	52.80	88.00	77.00	77.00	51.10	77.00	65.00	60.50	66.00	88.00	71.50	126.50	88.00
12 feet	45.00	55.56	57.60	96.00	96.00	84.00	57.16	84.00	73.00	66.00	72.00	96.00	78.00	138.00	96.00
13 feet	48.75	64.35	62.40	130.00	104.00	104.00	63.68	100.00	84.00	71.50	78.00	104.00	91.00	149.50	104.00
14 feet	52.50	76.30	79.94	140.00	112.00	112.00	76.02	112.00	100.00	77.00	84.00	140.00	98.00	161.00	112.00
15 feet	56.25	84.00	85.65	150.00	150.00	120.00	90.16	120.00	115.00	82.50	90.00	150.00	150.00	172.50	120.00
16 feet	60.00	92.80	91.36	160.00	160.00	144.00	100.64	136.00	129.00	88.00	112.00	160.00	160.00	184.00	128.00
17 feet	63.75	106.25	97.07	170.00	170.00	153.00	114.68	153.00	147.00	93.50	119.00	170.00	170.00	195.50	136.00
18 feet	67.50	117.90	129.78	180.00	180.00	162.00	128.10	162.00	164.00	99.00	126.00	180.00	180.00	207.00	144.00
19 feet	71.25	133.00	136.99	190.00	190.00	171.00	143.44	180.00	184.00	104.50	133.00	190.00	190.00	218.50	152.00
20 feet	75.00	150.00	144.20	200.00	200.00	200.00	156.60	200.00	200.00	110.00	140.00	240.00	200.00	230.00	160.00
21 feet	78.75	162.75	177.24	210.00	210.00	210.00	175.00	231.00	224.00	115.50	147.00	252.00	252.00	241.50	168.00
22 feet	82.50	181.50	185.68	220.00	220.00	220.00	200.00	242.00	256.00	121.00	154.00	264.00	264.00	253.00	176.00
23 feet	86.25	207.00	194.12	230.00	230.00	230.00	228.12	253.00	292.00	126.50	161.00	276.00	276.00	264.50	184.00
24 feet	90.00	222.00	202.56	240.00	240.00	240.00	262.50	264.00	336.00	132.00	168.00	288.00	288.00	276.00	192.00
25 feet	93.75	250.00	211.00	250.00	250.00	250.00	287.00	279.00	360.00	137.50	175.00	300.00	300.00	287.50	200.00
26 feet	97.50	260.00	219.44	260.00	260.00	260.00	*	308.00	384.00	143.00	182.00	312.00	312.00	299.00	208.00
27 feet	101.25	270.00	227.88	270.00	270.00	270.00	*	324.00	408.00	148.50	*	324.00	324.00	310.50	216.00
28 feet	105.00	280.00	236.32	280.00	280.00	280.00	*	336.00	432.00	*	*	336.00	336.00	322.00	224.00
29 feet	108.75	290.00	244.76	290.00	290.00	290.00	*	348.00	456.00	*	*	348.00	*	333.50	232.00
30 feet	112.50	300.00	253.20	300.00	300.00	300.00	*	360.00	480.00	*	*	360.00	*	345.00	240.00
31 feet	[5]	310.00	261.64	310.00	310.00	310.00	*	372.00	*	*	*	372.00	*	356.50	*
32 feet	[5]	320.00	270.08	320.00	320.00	320.00	*	384.00	*	*	*	*	*	*	*
33 feet	[5]	330.00	278.52	330.00	330.00	330.00	*	*	*	*	*	*	*	*	*
34 feet	[5]	340.00	286.96	340.00	340.00	340.00	*	*	*	*	*	*	*	*	*
35 feet	[5]	350.00	295.40	350.00	350.00	350.00	*	*	*	*	*	*	*	*	*

1 From *The Evening Post* (Greater Port of New York Supplement), New York, June 20, 1917.
2 Includes pilotage on the Delaware River to and from Philadelphia.
3 Includes pilotage on Chesapeake Bay and Patapsco River to and from Baltimore.
4 Includes pilotage on the Mississippi River to and from New Orleans.
5 Rates at Galveston vary not only with the draft of the vessel, but also with the net tonnage; rates here given apply to vessels with net register of 1,500 tons or over.
* No rate shown, either because none is quoted, or because vessels of this draft are not accommodated.

adopt measures to be observed in all parts of the United States and in the insular possessions. It can also coöperate with foreign governments in the work of checking disease.

As the protection of the health of their citizens is one of the police powers reserved by the states, the National Government has been obliged, in the main, to work through the state authorities in its measures regarding public health. There is no question as to the power of the National Government to place quarantine restrictions upon interstate and foreign commerce; but as the states also have that power, the tendency, especially until 1893, has been for the National Government to rely upon the states. In 1878 Congress provided for national quarantine; and in 1879, in consequence of the epidemic of yellow fever in the Southern States during 1878, a National Board of Health was created, to last for four years. This board of health not only operated through the United States Marine Hospital Service in aiding the state and local health officers, but also established numerous quarantine stations, and these temporary stations were, by an act of Congress passed in 1888, made permanent, and were equipped for their purposes.

The next step in the development of the national quarantine service was taken in 1893, in consequence of the danger to which the people of the United States were subjected by the appearance of the Asiatic cholera in the European ports from which large numbers of immigrants were brought to this country. This law provided "for the formulation of uniform regulations to be observed by all state and local quarantine authorities in preventing the introduction of epidemic diseases from foreign countries, and the spread of such diseases from one state or territory to another." If the states or municipalities neglect or refuse to carry out the national regulations, the President can appoint officers to execute the rules. Since the passage of the act of 1893, the Surgeon General has supervised the state and local quarantine stations, and required them to conform to the standards fixed by the United States. Several of the state and local quarantines have been turned over to the Federal Government.

Until 1902 the title of Marine Hospital Service was retained without change, although the service had come to include all quarantine duties, the medical inspection of immigrants, and all measures taken by the United States to protect the public health; but in 1902 Congress gave the service the more appropriate title of the United States Public Health and Marine Hospital Service; and in 1912 its title became the Bureau of the Public Health Service. The service remains under the Secretary of the Treasury, where it has always been.

A reference to the quarantine service at New York City will illustrate the activity of a typical state of the United States at a port of first rank. Under a non-salaried Supervisory Board there is a Health Officer of the Port of New York, who is the active and responsible official for the enforcement of the state quarantine laws.

All vessels entering the port of New York must stop at the entrance to the bay opposite the quarantine station on Staten Island. One or more of the state health officers board the ship, and the bill of health from the port of departure must be shown by the master of the vessel, and he or the ship's physician must report all sickness, accidents, deaths and births that have occurred on the voyage. If the vessel has come from an infected port, or if a contagious or infectious disease is found to exist among the passengers or crew, the ship may be fumigated and detained until the health officer thinks the vessel may discharge its passengers and cargo without endangering the public health.

The state quarantine charges at the port of New York are as follows: Each vessel from a foreign port must pay an inspection fee of $10 if its gross tonnage exceeds 500 tons and $5 if it has a tonnage of 500 gross or less; for other vessels an inspection fee of $3; for fumigating and disinfecting a vessel, fees ranging from $5 per hospital, cabin, or stateroom, to $10 for each forecastle and 2½ cents per net ton for vessel holds; for supervising fumigation performed by the carrier or consignee, $5 for the first two hours and $2 for each additional hour; for boarding a passenger vessel between

sunset and sunrise and inspecting it at the request of the owner, master or consignee, $15; for medical inspection of third-class and steerage passengers, $5 for the first 100 passengers and $3 for every additional 100; for vaccination, 25 cents per person; for maintenance and care of persons removed from vessels and detained at quarantine, $1.50 per adult person per day; for maintenance, care, medical treatment and hospital accommodation, $2 per capita per day; for special sanitary inspection, $10 per vessel; and for issuing special permits to discharge cargo or baggage brought as freight, $1 for each permit. The charges were promulgated on April 1, 1913, and are in accord with the maximum charges fixed by law.[1]

After passing the state quarantine inspectors at Staten Island, the vessel may proceed to her pier; but if she has steerage passengers aboard, they must be landed at the United States Immigrant Station on Ellis Island, where each immigrant is given a medical inspection by the United States Bureau of Public Health. The would-be immigrants that are found to have a disease that bars them from entering the United States must be taken back, by the company that brought them, to the port from which they came; and if it shall appear that the alien had the disease when he started on the voyage, and that the disease might have been detected by inspection, the steamship company is liable to a fine of $200,

and in addition a sum equal to that paid by such alien for his transportation from the initial point of departure indicated in his ticket, to the port of arrival for each and every violation of the provisions of this Section, such latter sum to be delivered by the collector of customs to the alien on whose account assessed.

Regulation of Water Terminals

In the regulation of piers, wharves, docks, elevators and other facilities for handling traffic the dual authority of the Federal Government and the states or municipalities is again to

[1] New York laws 1913, ch. 136.

be noted. The Federal Government has complete control over the navigable channels and fixes the lines beyond which shore structures may not extend into the channel; but, between the pier line and the shore, the states and the municipalities exercise many regulatory powers. The various methods of port administration by the states and municipalities or by semi-independent public trusts were considered in Chapter X. Varying degrees of public control over water terminal services, charges, regulations and practices are generally exercised at most large American ports by the municipalities or states. It will be recalled that some American ports are public in the sense that either the municipality or the state actually owns the waterfront, and provides most of the needed terminal facilities. Even at the ports where much waterfront is owned by private concerns there has been a tendency of either the municipality or the state to acquire a portion of the waterfront, to provide a number of public wharves and to regulate, in a measure, the services, charges and regulations of privately-owned terminal facilities. The policy of the states and municipalities regarding their port charges will be considered in Chapter XXVII. It was, however, noted in the preceding chapter that the Interstate Commerce Act applies to water terminal facilities operated in connection with interstate shipments made partly by rail and partly by water. The Interstate Commerce Commission has, in many instances, exercised jurisdiction over such terminals. Its main object has been to prevent undue discrimination in the terminal charges and regulations. It has also been noted that the Interstate Commerce Act applies to all ferries operated in connection with interstate rail and water traffic.

The Shipping Act of September 7, 1916, moreover, applies not only to common carriers by water engaged in foreign and interstate commerce, but also to concerns that conduct a business of "forwarding or furnishing wharfage, dock, warehouse or other terminal facilities in connection with a common carrier by water." The provisions of the act prohibiting undue or unreasonable preference or advantage to particular persons,

localities or traffic, those regulating the establishment and observance of just and reasonable regulations and practices relating to the receiving, handling, storing or delivering of property, those prohibiting the giving out of information detrimental to shippers or consignees, those authorizing the Shipping Board to obtain periodical or special reports, records, etc., apply alike to common carriers by water and to concerns performing water terminal services.

Police Supervision

The municipal government exercises police supervision over the port under its jurisdiction, and, in case of a great harbor and port like New York, this is a task of some magnitude. The policing of the portion of the harbor under the jurisdiction of the city and state of New York is directed by the local commissioner of police. The police department conducts the actual harbor patrol work through a "harbor squad" equipped with a number of patrol boats. Under normal conditions from seven to ten boats patrol the harbor continuously. The harbor squad is engaged in boarding incoming vessels when necessary, in taking off prisoners, in attending and aiding at fires along the river front, in keeping order on excursion steamers, in assisting vessels in distress, in recovering drowned bodies, in preventing stealing, as far as possible, from barges, vessels and wharves within the harbor, and in general in enforcing the laws and ordinances of the city.

Although the police supervision of American ports is principally vested in the state and municipal governments, it is nevertheless dual in a limited degree. At New York, for example, the Federal Government through the United States Supervisor of the Harbor and his deputies exercises police control in so far as it relates to the enforcing of the federal laws against the dumping of material in navigable waters.

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CHAPTER XXVII

PORT AND TERMINAL CHARGES

Comparative statement of port charges at New Orleans, 403. Galveston, Mobile, Philadelphia, New York, and San Francisco, 404. Dockage and wharfage practices, 405. Other port charges upon vessels, 407; and upon cargoes, 408. References, 409.

REGARDLESS of the method by which a port is administered, it is necessary to pay various charges whenever a vessel enters or clears. Some of these charges are levied upon the vessel, while others are assessed against the cargo. Some are public charges imposed by the state, the municipality or the Federal Government, and still others are of a strictly commercial character.

The table[1] on the following page contains a comparative statement of the port charges over which local authorities have control or which vary at different ports because of local conditions.

The charges shown for New Orleans are those that were actually assessed shortly before that port's new system of charges went into effect upon a vessel having a gross tonnage of 5,154, a net tonnage of 3,279, a dead-weight capacity of 6,473 short tons, and a cargo space of 351,760 cubic feet. The charges given for the remaining ports contained in the table were computed on a hypothetical ship of the same size carrying the same cargo, and indicate what the charges would have been had the vessel entered and cleared from the ports of Galveston, Mobile, Philadelphia, New York and San Francisco. The computations were made by the engineering firm of Ford, Bacon & Davis in a report made to the Board of Commissioners of the Port of New Orleans. Under the new

[1] Ford, Bacon & Davis, *Analysis of Present Operation of the Port of New Orleans,* II, pp. 1-3.

TABLE 18.—COMPARATIVE STATEMENT OF PORT CHARGES, CONTROLLED BY LOCAL AUTHORITIES OR DEPENDENT ON LOCAL CONDITIONS, FOR A VESSEL HAVING GROSS TONNAGE 5,154, NET TONNAGE 3,279, DEAD-WEIGHT CAPACITY 6,473 SHORT TONS, AND CARGO CAPACITY 351,760 CUBIC FEET

ITEM	New Orleans	Galveston	Mobile	Philadelphia	New York	San Francisco
Local port charges:						
Harbor fee	$15.00	.....	.....	.....	.....	.....
Dockage of vessel	463.86[1]	.....	$25.00	$229.53	(2)	$257.35
Wharf or shed charges to vessel	77.31	175.00	.....	.....	$1,050.00	.....
Total	$556.17	$175.00	$25.00	$229.53	$1,050.00	$257.35
Wharfage, or tolls on cargo:						
Inward cargo	(3)	$994.00	$843.55	.....	.....	$198.80
Outward cargo	(4)	1,378.50	669.02	.....	.....	396.57
Total	.....	$2,372.50	$1,512.57	.....	.....	$595.37
Pilotage, inward, outward and within harbor	$283.00	$186.00	$254.00	$220.00	$173.04	$328.74
Towage, inward, outward and within harbor	$105.00	$100.00	$90.00	$105.00	$80.00	$100.00
Labor:						
Stevedore—						
Discharging cargo	$1,479.70	$1,573.48	$1,376.85	$1,199.35	$1,340.00	$1,597.50
Loading cargo	2,169.00[5,6]	2,058.64[6]	2,379.11[6]	1,935.31	1,675.00	2,596.15
Total	$3,648.70	$3,632.12	$3,755.96	$3,134.66	$3,015.00	$4,193.65
Miscellaneous charges:						
Cotton inspection	$11.52	$5.76	$11.52	.....	.....	.....
Local health or quarantine fee	.....	10.00	.....	$10.00	$10.00	$0.20
Running lines for vessels	.....	8.00	4.00	6.00	6.00	.....
Other miscellaneous charges	.....	7.68	50.00[7]	.....	.....	.....
Total	$11.52	$31.44	$65.52	$16.00	$16.00	$0.20
Recapitulation						
Local port charges	$556.17	$175.00	$25.00	$229.53	$1,050.00	$257.35
Tolls on cargo	.....	2,372.50	1,512.57	.....	.....	595.37
Pilotage	283.00	186.00	254.00	220.00	173.04	328.74
Towage	105.00	100.00	90.00	105.00	80.00	100.00
Labor	3,648.70	3,632.12	3,755.96	3,134.66	3,015.00	4,193.65
Miscellaneous charges	11.52	31.44	65.52	16.00	16.00	.20
Total expense, ship and cargo	$4,604.39	$6,497.06	$5,703.05	$3,705.19	$4,334.04	$5,475.31

[1] Would have been $515.40 under charges effective Nov. 15, 1915.
[2] On account of physical limitations of purely public facilities, the ship is here assumed to spend entire 14 days at private wharves.
[3] Would have been $198.80 under charges effective Nov. 15, 1915.
[4] Would have been $298.95 under charges effective Nov. 15, 1915.
[5] Includes $168.80 overtime and night work.
[6] Because of the condition that Mobile ships only sacked wheat, the Mobile item includes $525 for loading 1,500 tons at 35 cts. per ton. New Orleans and Galveston figures based on bulk wheat from elevators, include $70 and $89.60, respectively, for trimming only.
[7] Tarpaulin rental.

system of port charges effective in New Orleans on November 15, 1915, the vessel would have paid wharfage on its cargo as well as dockage on its gross tonnage, and the aggregate port expenses would have been $549.29 greater than before the new charges became effective.

Dockage and Wharfage Practices

It will be noted that two of the principal port charges shown in the table are the so-called "dockage" charges levied upon the vessel, and the "wharfage" charges, which are assessed against the vessel's cargo. The practice of the various ports regarding the collection of dockage or wharfage varies widely. Five principal variations are readily discernible:

1. At ports where the facilities are largely controlled by the trunk line railroads it is sometimes the practice of the railroads to give the use of their facilities for through traffic free of charge or at small expense. At Philadelphia, for example, no dockage is charged at railroad terminals if the vessel loads or discharges through freight. Most of the municipal piers are leased on exclusive terms, but some of them are open to public use upon payment of a dockage charge of one cent per net registered ton per day, in the case of steamers, and one-half that amount in the case of sailing vessels and barges, with a minimum charge of $2 per day. No wharfage charge is collected at the municipal wharves of Philadelphia in case cargoes are promptly removed, and the wharfage at the railroad terminals is absorbed by carriers on all through traffic. Additional examples of the large ports at which the railroads furnsih terminal facilities free of charge or at small expense are Boston, Baltimore and Norfolk.

2. At some ports, notably at New York, most of the port facilities are leased to steamship lines or railroads under time contracts at agreed annual rentals. In such case neither the vessel nor the cargo of the concerns that lease the facilities is required to pay dockage or wharfage charges, both being

included in the rentals that are paid to the city. Some of the municipal piers at New York are not, however, leased under time contracts, but are open for public use. In such case, vessels are obliged to pay a dockage charge of a fixed amount per net register ton per day, dependent upon the size of the vessel, the character of the trade in which it is engaged, whether the pier used is covered or uncovered, whether the vessel is occupying an outside berth, and whether it is handling cargo or ballast. Tramp vessels using privately owned piers are usually required to pay dockage charges of fixed amounts per day. No wharfage charge against the cargo handled at either privately owned or municipal wharves is collected at New York.

3. At some ports, such as Newport News, the port facilities are open to all vessels on substantially similar terms regardless of whether they operate as tramps or as regular lines, and the principal local charges consist of the dockage charge levied upon the vessels. Prior to November 15, 1915, New Orleans was the principal example of this system of port charges. At the private or railroad wharves of New Orleans no dockage charges were collected, but at the public wharves, which are of chief importance, the entire charge was assessed against the vessel; no wharfage charge on cargoes was collected. At present, however, both dockage and wharfage charges are collected at New Orleans.

4. In contrast with the plan of depending entirely upon vessel dockage charges is the system of wharfage charges in effect at Seattle, Wash., and Portland, Ore. At these ports no charge is made against vessels, but a wharfage charge is assessed against their cargoes.

5. At still other ports, such as Galveston and San Francisco, the plan is to depend principally upon tolls or wharfage charges, dependent upon the nature and quantities of the cargoes handled, but also to collect a relatively small dockage charge from the vessel. At either of these two ports the facilities are open to all on substantially equal terms.

The new system of port charges now in effect at New

Orleans also provides for both dockage and wharfage charges, but the amounts are more equally divided. The vessel included in the table on page 404, for example, would, under the new system, have paid dockage on its gross tonnage amounting to $515.40, and wharfage on its cargo at 5 cents per short ton of 2,000 pounds amounting to $497.75. The former "shed charge" of 1½ cents per gross ton for the use of shedded wharves continues under the New Orleans system of charges; and wharves and sheds may now be rented on a time basis at the rate of 3 cents per square foot per year, with the right on the part of the Board of Commissioners to revoke any preferential assignment upon 30 days' notice.

Other Port Charges Upon Vessels

As explained in the preceding chapter, pilotage service, with certain exceptions, is compulsory upon vessels entering and clearing American ports. A vessel, moreover, usually requires the services of tugboats, and is therefore obliged to pay towage charges, varying with the number of tugs used, the net registered tonnage of the vessel, the distance that the vessel is towed, and the character of the towage service. Sometimes a vessel is also required to pay a general port warden's harbor fee or specific fees for each survey on stowage of cargo or damaged goods on board a vessel or in warehouses, stores, dwellings or public streets; or for each survey on hull, sails, spars or rigging; and for survey certificates. A vessel may also need to pay local health or quarantine fees for fumigating services and sanitary inspection; charges for running lines for vessels; and other miscellaneous charges that are subject to control by local port authorities.

In addition to the vessel charges that are included in the preceding table (No. 18), a vessel will have to pay various federal charges, such as the tonnage taxes described in Chapter XXVIII, page 420; custom-house entrance and clearance fees; and survey charges.[1] The table, moreover, does not in-

[1] *Navigation Laws of the United States* (1915), p. 524.

clude variable charges, such as the consular fees that a foreign vessel may need to pay at American ports; charges for telegrams and cablegrams; for crew advertising; for cooperage and carpenter's services; for lumber; for supplies and provisions; for trimming cargo; for drydock services; for ship brokerage in case the vessel is in the chartered freight service; and for necessary fuel.

Bunker coal may be purchased at American ports from numerous concerns that make a business of providing vessels with fuel. Regular steamship companies may enter into yearly contracts whereby the bunker coal company agrees to provide whatever coal is needed at stated prices, and the navigation company agrees to purchase from the particular coal concerns all the bunker coal required at that port. Tramp steamers and other vessels not entering into time contracts may purchase fuel at current prices. As shown in the accompanying map (No. 9), numerous coaling stations have been established at convenient points on all the principal ocean routes throughout the world. It is also possible to obtain fuel oil at various ports in the United States and at a growing number of foreign coaling stations.

Port Charges Upon Cargoes

As stated above, wharfage charges distinct from the dockage charges paid by the vessels are sometimes assessed against cargoes. They may be collected directly from the vessels, but they constitute charges against cargoes. The heaviest charges assessed against the freight that is loaded or discharged by vessels, however, are stevedore charges. These may, of course, be incurred by the vessel instead of the shipper, consignee, or shipping agent, but if so they will be included in the freight charges that are collected. Those imposed at six of the principal ocean ports of the United States are included among the charges listed in Table 18. The cost of loading, discharging, or transshipping cargo at ports may, moreover, include special charges for the use of cranes or derricks. There

may likewise be elevator charges or allowances in the shipment of grain; cargo-trimming charges; freight-forwarding charges; railroad demurrage in case freight is not unloaded from railroad cars within the prescribed number of days; vessel demurrage in case freight is not loaded into the vessel within the prescribed free time; railroad switching charges; fees for consular invoices in case of shipments to certain countries requiring such invoices; drayage or cartage and lighterage charges for transporting freight from one wharf to another or between a railroad station and the waterfront; storage or warehouse charges; and miscellaneous charges incurred in the preparation of shipping documents. Many of the terminal charges collected at American ports are not uniform, for they are usually dependent upon local conditions. They may, moreover, be paid either directly by shippers or consignees, or they may be absorbed by the ocean or the rail carriers or be included in the freight rate.

Of a somewhat different character are cargo charges, such as import duties collected on many imported commodities under the tariff laws of the United States, and the brokerage charges, collected by customs brokers for entering imported merchandise through the custom house. These charges are not directly connected with the shipping and handling of cargoes in the foreign trade, and are to be considered as port charges only in an indirect way.

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CHAPTER XXVIII

THE MERCANTILE MARINE POLICY OF THE UNITED STATES[1]

Growing interest in merchant marine, 411. Early policy of shipping protection, 412. Developments between 1815 and 1910, 413. Reasons for abandoning shipping protection, 413. Shipping reciprocity, 414. Bounties and subsidies, 414. Indirect government aid, 415. Hampering legislation, 416. Aid to coastwise marine, 417; and to shipbuilding industry, 418. Present policy regarding merchant marine in foreign trade, 419. Tariff acts of 1909 and 1913, 419. Continuation and extension of previous forms of aid, 420. Free shipping in the foreign trade, 421. Liberal interpretation of measurement rules, 421. Discount of five per cent on import duties, 422. Federal ship-purchase plan, 423. Policy regarding regulation of shipping, 426. Present policy regarding coastwise shipping, 427; and shipbuilding, 428. References, 430.

THE mercantile marine policy of the United States Government has been changed from time to time, and has not always been directed toward the accomplishment of the same purpose. For many years shipping legislation was closely associated with the government's policy regarding domestic trade and industry, but a real effort is being made to promote the foreign trade. The growing need for foreign markets for American manufactures gradually directed the attention of the government to the need for a deep-sea merchant marine, and after 1914 the great world war created a demand for additional ocean tonnage, even in the well-organized ocean-carrying trade between the United States and Europe. The wholesale destruction of ocean shipping during the period of the

[1] Many facts and several statutes referred to in this chapter have been considered in previous portions of the book. The purpose of the present chapter is to present systematically the whole general subject of the shipping policy of the United States.

war, moreover, is likely to influence the shipping policy of the government for some time after the establishment of peace.

Early Policy of Shipping Protection

It is not feasible to define sharply the beginning and end of each period in the history of the government's maritime policy. The first era extends roughly from the adoption of the federal Constitution to the year 1815, and was characterized by the policy of shipping protection. The country's trade at that time was largely international, and the government was desirous of promoting the foreign trade and deep-sea shipping.

The first federal tariff law, the act of 1789, gave protection to shipping by providing that imports in American vessels should receive a discount of 10 per cent below the general import duties. In 1794 the law was so changed that imports in foreign vessels were required to pay an increase of 10 per cent above the normal tariffs, but the effect of the statute remained unchanged. This form of protection to shipping was maintained until 1815.

The act of 1789 gave maximum protection to shipping engaged in the trade between the United States and the Orient. It imposed an import duty ranging from 6 to 20 cents per pound on tea imported directly from India or China in American bottoms; while a duty of 15 to 45 cents per pound was imposed on tea imported into the United States in foreign vessels. All other Oriental products imported in foreign vessels were required to pay a duty of 12½ per cent ad valorem, which was nearly double the rate levied on imports delivered in American vessels. Similar provisions were incorporated in various laws enacted up to 1830.

Shipping protection did not consist entirely of discriminating import duties. The early tariff laws aided American shipping by imposing discriminating tonnage charges against foreign vessels. The act of July 20, 1789, provided that the tonnage tax on vessels built and owned in the United States and on foreign-built vessels owned by American citizens, on and

after May 29, 1789, should be 6 cents; on vessels thereafter constructed in the United States, but partly or wholly owned by foreigners, 30 cents; on all other vessels, 50 cents; and an act passed in 1804 levied a light-money tax of 50 cents per ton on foreign vessels, the rate being advanced to $1.50 a ton in 1812.

The aid given shipping was modified in 1815, when Congress provided that discriminating duties in favor of American ships should no longer apply in the direct trade between the United States and those foreign countries that agreed to discontinue all discriminations against American vessels. The policy of discriminating duties was wholly abandoned in 1828, when Congress decreed that it should no longer apply either in the direct or indirect trade of the United States. After 1815 and 1828 reciprocity treaties were negotiated with most maritime countries, and in consequence the clauses of later tariff acts providing for a discrimination of 10 per cent against the vessels of foreign countries that made discrimination in favor of their national shipping were of no practical importance.

Developments Between 1815 and 1909-10

There were various reasons for the abandonment of protection to shipping. Congress evidently believed that the American marine engaged in the foreign trade had reached a position of such strength that it no longer needed the protection of discriminating import and tonnage duties; that it could, in fact, compete effectively against ships of foreign countries. Some members of Congress believed that the abandonment of shipping protection would benefit American shipping by causing the removal of foreign discriminations. The change in the treatment of shipping was also associated with the gradual modification of the tariff policy. The tariff act of 1818 gave protection to American industries, and, with the exception of a few limited periods, that policy has continued to the present time. The foreign trade came to be regarded as less important than it had been in earlier years, and interest

in the promotion of domestic trade and industry diverted public attention from the foreign trade and the registered merchant marine.

After shipping reciprocity had been adopted and American ships engaged in the foreign trade were no longer aided by discriminating duties, the merchant marine was allowed for a time largely to shift for itself. Economic conditions were favorable to the development of American deep-sea shipping. The relative proportion of the value of foreign trade carried in American vessels gradually fell from 89 per cent in 1800 to 66.5 per cent in 1860, but the aggregate registered tonnage in the foreign trade increased from 824,000 tons gross in 1815 to 2,497,000 tons in 1861. During and after the Civil War the registered tonnage of the merchant marine declined steadily until 1911, in part, because of the governmental policy that prevailed, but even more largely because of the changing economic conditions, that will be referred to in Chapter XXX.

After shipping protection was abandoned, the government did not consistently follow a definite policy regarding the registered merchant marine. In some ways shipping was assisted and in others it was retarded. The following may be mentioned among the measures of shipping promotion that were attempted:

The bounties granted to certain cod-fishing vessels since 1792 were continued until 1846 as drawbacks on the import duties on the salt used in preparing the fish. In accordance with the law of March 3, 1845, moreover, mail subsidies were granted from 1847 to 1858. The largest sums were paid to the Collins Line, referred to in Chapter II, but smaller amounts were appropriated for the establishment of lines of mail steamers to operate to Bremen, Havre, Havana, and to Colon (then Aspinwall). Subsidies were also paid to the Pacific Mail Steamship Company for an Oregon service connecting at Panama with the line from New York and making stops at Santiago, Monterey and San Francisco. The total amounts paid in subsidies during the period 1845-58 were approximately $14,500,000. These payments caused the con-

struction of several large steamships and the establishment of a number of important lines. The results, however, were not of permanent value, because the policy was completely withdrawn at the time when the registered merchant marine in the United States most needed assistance.

The mail subsidy policy was temporarily revived in 1865, and several relatively small contract mail payments were authorized between that date and 1873, when the policy again was abandoned. The last of these contracts expired in 1877. It was during this period that the Pacific Mail Steamship Company received contracts for a monthly service to Japan and China and for a service to the Hawaiian Islands. Another contract was made with a steamship line for a monthly service between Philadelphia and Rio Janeiro.

After 1873 no direct ship subsidies were authorized by the United States Government until 1891, when the mail contract act, which is still in effect, was enacted. The provisions of this statute were fully described in Chapter XIV. Since 1891 six or seven steamship lines usually received mail payments in excess of the amounts they would have received had they not operated under mail contracts. The amounts authorized by this statute, however, were too small to stimulate the growth of the American merchant marine.

Throughout the period since 1815 the Federal Government has promoted American shipping in the foreign trade in various indirect ways. The commercial treaties negotiated with many countries were a form of indirect aid to shipping, in that they brought about the abandonment of discriminating import duties and tonnage taxes in foreign countries and paved the way for a larger foreign trade. Trade reciprocity treaties, moreover, were negotiated with various countries — with Canada in 1855, with the Hawaiian Islands in 1876, and with Cuba in 1903; and many reciprocal trade agreements were entered into under the McKinley Act of 1890 and the Dingley Tariff Act of 1897. These reciprocity treaties and agreements were a form of indirect aid to shipping, their purpose being to increase the volume of the foreign trade. Large sums were

annually expended in the improvements of rivers and harbors, in promoting the safety of navigation and in developing foreign trade and shipping through executive departments and bureaus. The tonnage taxes of the Federal Government since 1868 have been so low as not to constitute a burden upon shipping; and throughout this entire period relatively little regulation of ocean charges and services or of the relations between ocean carriers was attempted. Except for the passenger act of 1882, as amended, and the immigration laws referred to in Chapter XXV, ocean carriers engaged in the foreign trade were practically free from regulation as regards charges and services.

While the government aided American shipping in various ways, it also hampered the growth of the registered merchant marine. Until 1912 American registration was denied to foreign-built ships, the only exceptions being (a) "vessels which may be captured in war by citizens of the United States, and legally condemned as a prize, or which may be adjudged to be forfeited for a breach of the laws of the United States, being wholly owned by citizens"; and (b) foreign-built vessels wrecked in the United States, and purchased and repaired by American citizens, provided "the repairs put upon such vessel are equal to three-fourths of the cost of the vessel so repaired."

The cost of securing ocean-going vessels from American shipbuilders ranged from 40 to 60 per cent above the prices at which the ships could have been purchased in Great Britain. Under these conditions it was difficult for American-built ships to compete with those built abroad, and the increase of the registered merchant marine of the United States was consequently discouraged.

Congress burdened American shipping unnecessarily for a number of years after the close of the Civil War: By the law of February 10, 1866, Congress refused to permit vessels that had been transferred to foreign standards during the war to be readmitted to American registry. This law did not benefit the shipbuilding industry and was against the public interest, because it checked the increase in the tonnage of the registered

merchant marine. Another mistake was made by Congress in waiting until 1868 to repeal the heavy revenue taxes that had been placed upon shipping during the war period. Although requiring registered vessels to be American built, shipbuilders were not given the privilege, until 1872, of importing duty free the materials to be used in constructing and equipping wooden vessels for the foreign trade; and it was not until 1890 that Congress exempted from duty materials to be used in constructing iron and steel vessels for use in international commerce. It is not probable that the shipbuilding and merchant marine industries would have gained much by an earlier exemption from duties on materials employed in constructing vessels for the foreign trade, but whatever effects the duties had were against our shipping interests.

The laws and rules of the United States concerning the measurement of ships burdened American vessels in that they provided a net tonnage in excess of that assigned to British vessels. The measurement system adopted by an act of May 6, 1864, was practically the same as Great Britain had adopted by her Merchant Shipping Act of 1854, but the act of 1864 made provision only for the determination of gross tonnage. Until 1882 tonnage taxes and other ship charges in the United States were levied upon gross instead of upon net registered tonnage, as in Great Britain. After 1882, the ascertainment of net registered tonnage was provided for by the laws of the United States, and tonnage and other levies were based upon net tonnage; but until 1915 the American measurement rules were less liberal than those of Great Britain, the net registered tonnage of American vessels being greater than for British vessels of the same dimensions.

The laws of the United States were stricter than the laws of foreign countries as regards the treatment of crews and the safety of vessels at sea. This action on the part of the United States was justifiable. Whatever the needs of the registered merchant marine may be, the government should safeguard the seamen and try to increase the safety of navigation.

After 1817, the coastwise traffic along the seaboard and on

the Great Lakes was open only to American vessels. Indeed, from 1789 to 1817 foreign ships, although not prevented by law, were seldom able to engage in the coastwise business because American ships could usually perform the service better and cheaper than could their foreign rivals. The act of 1817 has done more than any other law for the American shipbuilding industry and for domestic shipping. The coastwise and Great Lakes merchant marine, being protected from the competition of foreign vessels, has grown with the increase in the demands for transportation. Coastwise and Great Lakes vessels have also been exempted from the payment of tonnage taxes, and steamships engaged in the domestic trade are not subject to the compulsory state pilotage laws to which vessels in the foreign trade and sailing vessels are required to submit.

The United States Government aided the shipbuilding industry during the period from 1815 to 1910 in four ways:

(a) The registry statutes which barred foreign-built vessels from American registry were intended primarily to assist American shipyards, although in later years they failed to accomplish this purpose. (b) The limitation of coastwise and Great Lakes shipping to American-built vessels did much to promote the shipbuilding industry. (c) Congress gave shipbuilders the advantage of permitting them to import duty free such foreign materials as they desired to use in constructing or repairing vessels, whether the vessels were to be sold to foreigners, or to be sold to citizens of the United States, to be "employed in the foreign trade, including the trade between the Atlantic and Pacific ports of the United States." The value of these exemptions from the payment of duty on imported materials was, however, greatly lessened by the stipulation that vessels receiving these benefits "shall not be allowed to engage in the coastwise trade of the United States more than two months in any one year." (d) The naval policy of the United States Government during the last 25 years of this period was of great assistance to shipyards located on the seaboard. Most government vessels were built in private

shipyards under direct orders from the government. The construction of these war vessels enabled shipbuilders to modernize their plants and encouraged them in establishing new yards, such as those at Newport News, Camden and Fore River. The relatively large naval tonnage constructed for the United States was carefully distributed among the shipyards on the Atlantic and Pacific coasts, the government work required the steady employment of many thousands of men, and developed a large body of skilled mechanics and a corps of naval architects.

The merchant marine policy of the United States during this period was on the whole liberal, but so far as the foreign trade and registered marine were concerned it was not a direct and positive policy. Foreign competitors gradually secured the share of the general ocean-carrying trade of the world that had formerly been conducted in American vessels, and in time became the carriers of nine-tenths of the foreign commerce of the United States.

The Present Policy Regarding the Merchant Marine in the Foreign Trade

Since 1909 and 1910 the trend of government policy and of public opinion has been toward the foreign trade, and this has revived interest in the registered merchant marine. The tariff acts of 1909 and 1913 both aimed to promote the foreign trade, although the former embodied the policy of protection to American industries and the latter brought about a reduction in the import duties on many commodities. They indicate that both those in favor of a protective tariff and those who believe in having a tariff for revenue only are desirous of increasing the country's foreign commerce. The laws differ in method rather than in intent. The tariff act of 1909 aimed to promote foreign trade by applying the double tariff policy. The act of 1913 abandoned this method of increasing the foreign trade and substituted a policy embodying reduced import duties and a provision for reciprocity treaties.

Some of the measures affecting the merchant marine engaged in the foreign trade that were adopted during the preceding period have since then been continued or extended. Appropriations for rivers and harbors have been continued. The government has adopted additional measures to increase the safety of navigation, to promote foreign trade and to assist the shipping business. By the act of August 5, 1909, the tonnage taxes of vessels entering from foreign ports in North America, Central America, the West Indies, the Bahamas, the Bermudas, the Caribbean coast of South America, or from Newfoundland, were reduced from 3 to 2 cents per ton, and the maximum annual tonnage tax from 15 to 10 cents per ton. By the act of March 8, 1910, vessels entering otherwise than by sea from a foreign port at which no tonnage or lighthouse dues or equivalent taxes are imposed upon American vessels, were entirely exempted from the payment of tonnage taxes. With these exceptions the tonnage taxes on entering from foreign ports remain at 6 cents per net register ton at each entry, with a maximum of 30 cents per ton per annum.

The Mail Contract Act of 1891 remains in effect, but, as the Post Office Department has in recent years adopted the policy of shipping and forwarding as much mail as possible on the vessels receiving contracts under the act, the extent of the service performed by these vessels has so increased that the amount received for carrying the mails in 1914 was less than they would have received at the regular non-contract mail rates.

Laws regarding the welfare of crews on board American ships and the safety of vessels at sea have been greatly extended since 1909. Statutes increasing life-saving appliances and requiring wireless telegraphy have been enacted. The Seamen's Act of March 4, 1915, which fixed the proportion of the deck crews that must have a rating of able seamen, and provided that not less than 75 per cent of the crew of vessels subject to the Seamen's Act must be able to understand any orders given by the officers, have called forth much complaint on the part of American navigation companies operating in

the foreign trade. These provisions burden American shipping, particularly on the Pacific Ocean, without measurably increasing the safety of navigation or the welfare of American sailors.

Various new laws concerning the merchant marine in the foreign trade have, moreover, been enacted since 1909 and 1910. The Mail Contract Act of 1891 was supplemented by an act of March 3, 1917, which authorizes the Postmaster General to contract for the operation of fast mail ships between the United States and Great Britain and to pay them at rates not exceeding $8 per mile for each outward voyage. The vessels operating under such contracts must have a gross tonnage of at least 35,000 and a speed of not less than 30 knots per hour. The registry laws were so changed in 1912 and 1914 as to provide for "free shipping" in the foreign trade. American citizens or corporations may now purchase ships anywhere in the world and register them under the American flag for the foreign trade. The United States rules for the measurement of tonnage were so interpreted in 1915 by the United States Commissioner of Navigation that American vessels are no longer at a disadvantage in the payment of tonnage taxes and vessel charges. With certain exceptions the United States rules for the measurement of gross and net tonnage are now like those of the British Board of Trade.

An effort was made in the Tariff Act of October 3, 1913, to revive a part of the old policy of shipping protection. That law provides that

> A discount of 5 per centum on all duties imposed by this Act shall be allowed on such goods, wares, and merchandise as shall be imported in vessels admitted to registration under the laws of the United States: *Provided*, That nothing in this sub-section shall be so construed as to abrogate or in any manner impair or affect the provisions of any treaty concluded between the United States and any foreign nation.

Inasmuch as the United States has entered into treaties with most of the maritime countries of the world agreeing

not to levy discriminating duties, this provision of the act of 1913 will probably have slight effect. The Board of United States General Appraisers held that the 5 per cent reduction does not apply to the vessels of nations with which the United States has treaties prohibiting discriminations in duties; the Attorney General advised the Treasury Department that the clause was inoperative because the discount could not be applied to American vessels without violating the treaty rights of foreign nations; but the United States Customs Court ruled that the clause is operative and that it applies alike to American vessels and to the vessels of nations with which the United States has treaties, both being entitled to the 5 per cent discount. This interpretation by the Customs Court, if adhered to, would mean an annual reduction of about $10,000,000 in the customs revenues, computed at the rates contained in the Tariff Act of 1913. The decision of the United States Customs Court has been appealed to the United States Supreme Court, where the case is now pending. Whatever the decision of the Supreme Court may be, it is not likely that the policy of shipping protection can be revived on a large scale so long as the many commerce and navigation treaties promising shipping reciprocity remain in effect. Even in the absence of these treaties, the policy if enforced would probably lead to such wholesale retaliation against American vessels on the part of foreign countries as to cause the speedy repeal of the discriminating duty.

The attempted return to shipping protection contained in the Tariff Act of 1913 was not regarded by the authors of the act as the mainstay of the government's present merchant marine policy. An agitation for government ownership of merchant vessels soon arose, and received the support of the same administration that had espoused the tariff act. In August, 1914, the acute need for ocean tonnage occasioned by the war in Europe made it clear that the government would adopt either an extensive program of ship subsidies or of government ownership of merchant vessels. The administration favored the latter policy, and it was adopted in the United States

Shipping Act of September 7, 1916. The issue was sharply contested in Congress, however, and the act providing for the purchase of ships by the government was, in a measure, a compromise.

The Shipping Act of September 7, 1916, created a United States Shipping Board, and authorized the Board, with the approval of the President, to exercise the following powers:

1. It may have vessels constructed and equipped in American shipyards and navy yards or elsewhere, or it may "purchase, lease, or charter vessels suitable, as far as the commercial requirements of the United States marine trade may permit, for use as naval auxiliaries or army transports, or other naval or military purposes." The law exempted from such purchase, lease or charter American merchant vessels engaged in the commerce of the United States, unless about to be withdrawn from such commerce; also vessels under the registry or flag of a foreign country engaged in war; vessels not adapted to the purposes specified; and vessels found not to be at least 75 per cent as efficient as at the time they were first put into commission as seaworthy vessels.

2. The President was authorized to transfer to the Shipping Board any war or naval vessel suitable for commercial purposes and not required for military and naval uses in time of peace, and also such vessels owned by the Panama Railroad Company as are not required in its business.

3. The Shipping Board, with the approval of the President, may charter, lease or sell to citizens of the United States any vessels so purchased, constructed or transferred; and in case the vessels become unfit for the purposes specified in the act, the board may sell them at public auction or private competitive sale after due advertisement, free from all the restrictions or conditions of the Shipping Act. Any vessel acquired from the board by purchase, lease or charter may be documented as a vessel of the United States, with all legal benefits and privileges; it may even engage in the coastwise trade. All vessels acquired from the board must, however, unless authorized

by the board, be operated solely under the flag of the United States. The act further provides that in time of war or national emergency no vessel documented under the laws of the United States may, without the approval of the board, be sold, leased, or chartered to a foreigner or transferred to a foreign flag. No vessels documented under the American flag or owned by citizens of the United States, except such as the board is prohibited from purchasing, may be sold to a foreigner or transferred to foreign flags unless the vessels are first tendered to the board at the price offered in good faith by others. The President may, after giving notice, take possession for naval and military uses of any vessels that were acquired from the board.

4. The Shipping Board may organize one or more corporations under the laws of the District of Columbia to purchase, construct, equip, lease, charter, maintain and operate merchant vessels. Their capital stock may not exceed $50,000,000, and the United States shall purchase and vote not less than a majority of their capital stock. Such corporations are, however, prohibited from operating any vessels acquired under the act of September 7, 1916, unless the board was unable to sell, lease, or charter them to citizens of the United States under the terms prescribed by the board. The operation of vessels by the board through such corporations is further restricted by the clause which provides that—

> At the expiration of five years from the conclusion of the present European war the operation of vessels on the part of any such corporation in which the United States is then a stockholder shall cease and the said corporation stand dissolved. The date of the conclusion of the war shall be declared by proclamation of the President. The vessels and other property of any such corporation shall revert to the board. The board may sell, lease, or charter such vessels as provided in section seven and shall dispose of the property other than vessels on the best available terms and, after payment of all debts and obligations, deposit the proceeds thereof in the Treasury to its credit. All stock in such corporations owned by others than the United States at the time of disso-

lution shall be taken over by the board at a fair and reasonable value and paid for with funds to the credit of the board.

In 1917, when the United States declared a state of war to exist between Germany and the United States, and the need for ocean tonnage became acute, the scope of the ship-purchase plan was greatly extended. At first it was announced that 1,000 wooden vessels would be constructed under the auspices of the Shipping Board, and contracts were let for the building of a number of wooden vessels. The original sum available for ship construction and purchase ($50,000,000) was wholly inadequate to carry out this program, and an expenditure of $750,000,000 was authorized in an act of June 15, 1917. This sum was increased to $1,934,000,000 in an act of October 6, 1917. The program under these acts was to purchase iron and steel as well as wooden vessels and to build vessels as rapidly as the available capacity of the country's shipyards permitted.

Whether or not the ship-purchase plan will become more than a temporary part of the government's merchant marine policy has not, at the present writing, been decided. The five-year limiting clause of the act of September 7, 1916, is still in effect. The future policy of the government will doubtless depend upon the success or failure of the experiment now being made with government ownership of vessels. The Shipping Act in the clause immediately following instructs the Shipping Board to investigate the needs of American shipping and to make recommendations to Congress:

The board shall investigate the relative cost of building merchant vessels in the United States and in foreign maritime countries, and the relative cost, advantages, and disadvantages of operating in the foreign trade vessels under United States registry and under foreign registry. It shall examine the rules under which vessels are constructed abroad and in the United States, and the methods of classifying and rating same, and it shall examine into the subject of marine insurance, the number of companies in the United States, domestic and foreign, engaging

in marine insurance, the extent of the insurance on hulls and cargoes placed or written in the United States, and the extent of reinsurance of American maritime risks in foreign companies, and ascertain what steps may be necessary to develop an ample marine insurance system as an aid in the development of an American merchant marine. It shall examine the navigation laws of the United States and the rules and regulations thereunder, and make such recommendations to the Congress as it deems proper for the amendment, improvement, and revision of such laws, and for the development of the American merchant marine. It shall investigate the legal status of mortgage loans on vessel property, with a view to means of improving the security of such loans and of encouraging investment in American shipping.

Recent legislation has radically changed the policy of the government concerning the regulation of shipping. The Interstate Commerce Commission, under the Interstate Commerce Act, as amended in 1906, 1910 and 1912, has exercised certain powers over shipments handled partly by rail and partly by water in the coastwise and Great Lakes trade and in the trade with adjacent foreign countries. The commission also indirectly regulates the overseas trade by regulating the railroad and railroad terminal portions of overseas shipments. The port-to-port business, services and charges of carriers by water were subjected to regulation in the Shipping Act of September 7, 1916, which act also embodied the government's ship-purchase plan. The Panama Canal Act of 1912 regulates the relations between rail and water carriers, and the Shipping Act of 1916 regulates the relations between ocean carriers.

The regulation of ocean carriers is intended mainly to protect shippers, but some phases of regulation will also tend to promote the registered merchant marine. Among the features of recent legislation intended to aid shipping are the control of ocean conferences by the Shipping Board, the suspension of the Sherman Act as regards ocean conferences, agreements, understandings and arrangements, and the power given the Interstate Commerce Commission, in case a railroad issues through bills of lading in the foreign trade via one ocean line

at a given port, to require the railroad to enter into the same arrangements with other steamship lines.

Present Policy Regarding Coastwise Shipping

The present policy[1] of the United States concerning the coastwise and Great Lakes merchant marine is largely as it was before 1909-10. It has, however, changed in various respects:

1. The exclusion of foreign-built vessels from the domestic trade is continued, in the main, but was modified by the Shipping Act of September 7, 1916, so far as concerns foreign-built vessels acquired from the United States Shipping Board and documented under the American flag, or foreign-built vessels operated by corporations in which the United States is a stockholder. Section nine of the act provides that—

> Foreign-built vessels admitted to American registry or enrollment and licensed under this Act, and vessels owned, chartered, or leased by any corporation in which the United States is a stockholder, and vessels sold, leased, or chartered to any person a citizen of the United States, as provided in this Act, may engage in the coastwise trade of the United States.

2. Indirect aid is given shipping by appropriations for rivers and harbors, also by laws to make navigation safer, and by the activities of administrative bureaus for the promotion of commerce. This indirect assistance has been gradually enlarged.

3. The navigation laws concerning the welfare of crews and the safety of vessels at sea have been made more detailed and stringent.

4. The government ship-purchase plan, although intended primarily to provide vessels for the foreign trade, applies also to coastwise shipping. The vessels acquired may be operated either in the foreign or in the coastwise trade.

5. The charges and services of coastwise and Great Lakes carriers, and the relations between them and with the rail-

[1] Since writing this the coastwise trade has been temporarily opened to foreign vessels as a war measure, by act of October 6, 1917.

roads, are regulated both by the Interstate Commerce Act as amended, and by the United States Shipping Act, coastwise and Great Lakes carriers being regulated to a greater extent than are ocean carriers engaged in the foreign trade.

Most of the provisions of the laws regulating carriers by water tend to protect the shipper, but some of the provisions may prove to be of benefit to the carriers. In addition to the provisions cited above in connection with the foreign trade, mention may be made of those that prohibit the raising of a railroad rate that was reduced with a view to eliminating water competition, unless the Interstate Commerce Commission is convinced that the advance is justified by other changed conditions. A similar provision of the United States Shipping Act concerns rates reduced by a coastwise or Great Lakes carrier in competition with another, the Shipping Board in this case, instead of the Interstate Commerce Commission, acting as the administrative body. The Interstate Commerce Commission, by the Panama Canal Act of 1912, was authorized to order and supervise the making of physical connection between rail and water carriers. The provisions of the Panama Canal Act prohibiting the control or ownership of water carriers by railroads under certain prescribed conditions were also intended for the promotion of the coastwise and Great Lakes merchant marine, but it is doubtful whether they will accomplish their purpose.

Present Policy Regarding Shipbuilding

During recent years the government's methods of promoting the shipbuilding industry have changed in four respects:

1. The policy of "free shipping" that was adopted for the foreign trade in 1912 and 1914 deprives American shipyards of the substantial monopoly that they held under former laws, which, with certain exceptions, limited American registry for the foreign trade to vessels built in the United States. The free shipping policy in the foreign trade is commendable, because it removes an objectionable restriction upon the shipping

industry without really injuring American shipyards. For many years prior to the present war practically no vessels for the foreign trade were constructed in the United States.

2. The shipbuilding industry continues to be aided by the navigation law of 1817, which restricts the coastwise and Great Lakes trade to American-built vessels. The policy was, however, modified in the United States Shipping Act of 1916 to the extent that foreign-built vessels acquired from the Shipping Board and documented under the United States flag or operated by corporations in which the United States is a stockholder may be operated in the coastwise trade.[1]

3. The policy of exempting shipbuilding materials from the payment of import duties has been extended. Before 1909 vessels built with materials imported free of duty could not engage in the coastwise trade longer than two months annually; but in 1909 the time for participating in the coastwise trade was extended to six months; and in 1912 this restriction was completely removed. The policy of exempting shipbuilding materials from import duties was adopted in full in the Panama Canal Act of 1912, section five providing that—

> All materials of foreign production which may be necessary for the construction or repair of vessels built in the United States and all such materials necessary for the building or repair of their machinery and all articles necessary for their outfit and equipment may be imported into the United States free of duty under such regulations as the Secretary of the Treasury may prescribe.

The Tariff Act of 1913 retained this general principle, but so modified it that materials for the repair of foreign ships in American shipyards and of American vessels in the coastwise trade remain subject to duty.

4. The shipbuilding industry continues to be aided by the naval program, which each year provides shipyards with profitable orders for naval and other public vessels, even though some are also being constructed in United States navy yards. At the present writing [1917] the shipbuilding industry is being greatly aided by government orders for a large

[1] See footnote, p. 427.

number of merchant vessels to meet the tonnage needs created by the war. The act of September 7, 1916, instructs the United States Shipping Board to investigate, and to report upon, the relative cost of building merchant vessels in the United States and foreign countries, and to make recommendations to Congress as to future legislation.

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CHAPTER XXIX

CONDITION OF THE AMERICAN SHIPBUILDING INDUSTRY

Statistics of past and present shipbuilding in the United States, 432. Shipbuilding since beginning of war in Europe, 433. Causes of unfavorable conditions after the Civil War, 434. Relative cost of American and foreign-built vessels, 435. Causes for higher shipbuilding cost in the United States, 436. Fluctuations in prices of steel, 437. Recent coöperation of steel and shipbuilding industries, 439. Labor costs, 439. Large-scale production in foreign countries, 440. Standardization abroad, 441. Present conditions and future prospects, 442. Future prospects improving, 443. Construction bounties undesirable, 444. What the government should do for American shipyards, 445. References, 446.

THE shipbuilding industry is one of the oldest in the United States. Many prosperous shipyards flourished in New England and in New York from early colonial days, and, from a somewhat later date, in Philadelphia, until after the Civil War. There was an abundance of suitable timber for building wooden sailing vessels; an adequate supply of labor was available; standardized types of sailing vessels known throughout the world were developed; and there was a large demand for American vessels, principally among American shipowners, but to some extent also abroad. Shipbuilding and shipowners were very closely affiliated. Many vessel owners were financially interested in shipyards; shipyard properties at times constructed vessels for themselves or retained an interest in them; and in off-seasons sailors were employed as workmen in shipyards.

The shipbuilding industry in the United States has developed largely in accordance with the progress of our mercantile and naval marines. Until the Civil War our merchant marine was large, and increased year by year, and the American ship-

builders carried on an expanding business. They not only supplied the shipping purchased by Americans, but also sold a large tonnage to foreign buyers; because our shipwrights could build wooden vessels cheaper and better than their competitors could. The American packet and clipper ships enjoyed an enviable reputation for seaworthiness and speed. The decline in the demand for American-built ships among home and foreign buyers fell off with the gradual substitution of iron for wood in vessel construction after 1850, and with the decrease, which began in 1861, in the tonnage of American vessels engaged in the international carrying trade.

Shipbuilding activity in the United States, prior to 1917, reached its maximum during the decade ending with 1861. During those ten years there were 3,600,748 tons of shipping constructed in American yards. The output was greatest in 1854 and 1855, when 1,119,496 tons—about 560,000 tons annually—were launched. With the exception of 1908, those are the only years before the great European War when the annual tonnage of shipping constructed has exceeded 500,000. During this decade preceding the Civil War the documented tonnage of the American merchant marine rose from 3,500,000 tons to 5,500,000, and 350,000 tons of shipping were sold to foreign buyers.

The Civil War required the construction of a great many war vessels, and it would not have seriously crippled our shipbuilding industry had the war been followed by a demand for American-built ships. The demand did not follow the war, because foreign buyers desired to purchase iron ships, which our yards could not supply, and because ships operated under the American flag were not able to compete successfully with foreign vessels in the international carrying trade. Moreover, for twenty years following the Civil War the United States Government neglected its navy and placed no orders for war vessels among our shipbuilders.

The effect of these causes upon the decline of shipbuilding activity for over 30 years after the Civil War is revealed in the statistics of tonnage annually constructed. At the end of

the war American shipyards were turning out annually between 300,000 and 400,000 tons of ships of all classes; but with the exception of two periods of temporary revival—one in 1873 and 1874, and the other in 1891—the annual output did not reach 300,000 tons until 1899. Moreover, these figures do not indicate the real decline in the shipbuilding industry, because they include the tonnage constructed for the increasing coastwise trade, and for the Great Lakes and other inland waterways where only American-built ships could be employed. The merchant tonnage annually built on the seaboard amounted to about 300,000 tons at the close of the Civil War, after which it declined to about 100,000 by 1880. A short revival came in the early eighties, and another in the early nineties; but with those exceptions the coastwise shipyards made no headway after 1880, until the somewhat more prosperous period beginning with 1899 was reached. The output of the entire shipbuilding industry then rose to 400,000 tons gross or more annually, the highest point being reached in 1908 with 614,216 tons. Over half of the large output of 1908—216 vessels of 341,165 tons gross—however, came from the shipyards of the Great Lakes, where the rapid increase in the lake trade had occasioned an unusual demand for tonnage. The limited variety of commodities comprising the bulk of the commerce of the Great Lakes, moreover, had encouraged a degree of standardization far in excess of what had been accomplished in seaboard shipyards. After 1908 the annual output of American shipyards dropped back to a level fluctuating between 225,000 and somewhat less than 350,000 tons gross. The gross tonnage constructed in 1915 was 225,122 and in the fiscal year 1916, 325,413 tons.

Since the second year of the European war, American shipyards have been highly prosperous; in fact, they have been deluged with orders. At the end of the fiscal year 1916, 445 steel vessels with a gross tonnage of 1,305,586 tons were being constructed or were under contract, and 385 of them with a gross tonnage of 1,225,784 were merchant vessels. By October 1, 1916, the number of steel merchant vessels build-

ing or contracted for in American shipyards had risen to 417 with a gross tonnage of 1,454,270.[1] By May 1, 1917, the total number of vessels had risen to 704, having a gross tonnage of 2,253,700. It was estimated that 326 vessels of 998,000 gross tonnage would be launched before the close of the fiscal year ending June 30, 1917.

It is not certain, however, that the sudden activity in the shipbuilding industry occasioned by war conditions insures permanent prosperity for the future. The industry in the United States is not at present on a competitive basis. Cost considerations have, for the time being, been made negligible by the acute need for ships suitable for the foreign trade. The paramount consideration at the moment in the United States and abroad is the ability of shipyards to make rapid deliveries. Conditions as they were before the war should not be forgotten, as some of them may again prevail in the future.

Causes of Unfavorable Conditions After the Civil War

In 1914, immediately before the war in Europe, the United States Census Office reported that there were 79 iron and steel shipyards in the United States, with a capital of $132,712,000, giving employment to 33,508 wage-earners, paying $25,166,000 annually in wages and $29,270,000 for materials, and having an output valued at $66,217,000. There were also 1,068 establishments building wooden vessels. Most of these wooden shipyards were small, but together they employed 10,981 employees and $23,348,000 of capital; they paid out $7,765,000 in wages and $9,327,000 for materials, and their output in 1914 was valued at $22,465,000. These figures show clearly that the shipbuilding industry in the United States was by no means a small one. It was not, however, in a prosperous condition; it had not kept pace with the growth of American commerce and it did not enjoy the prosperity that attended shipbuilding industries in countries such as Great Britain, Ger-

[1] U. S. Commissioner of Navigation, *Annual Report, 1916*, pp. 21, 22.

many and Japan. This lack of prosperity was especially pronounced in the iron and steel branch of the industry. The country's entire shipbuilding industry with a capital of $156,000,000 constructed a gross tonnage of but 316,250 in 1914, and less, as was stated above, in the following year. In 1850 when the capital invested in the industry was but $5,373,000 the gross tonnage built was 279,000 and five years later it was 583,000.

Why is it that the shipyards on the New England seaboard and along the Delaware and Chesapeake have not since the Civil War been able to construct ships in competition with the builders on the Clyde, Tyne and Severn? Why is it that the only buyers of American-built vessels have been those who purchased ships to be operated under the American flag, and were compelled by the navigation laws to secure their vessels from American yards? "What is a steamship, but a locomotive and a steel bridge wrought together?" The United States exports locomotives to many countries, and builds bridges in various remote parts of the world, but has not been able to compete with foreign builders in the construction of steel vessels. American yards could do as good work as any builders could, but the foreign shipyards could do the work for less cost.

That ships could be built more cheaply under normal conditions in British and German yards than in American yards is a well-established fact. The Merchant Marine Commission stated in its report made in January, 1905, that "recent actual bids of American, British and German yards for typical North Atlantic steamships, which have been commmunicated to the commission, show an American excess of cost of about 47 and 37 per cent." Mr. P. A. S. Franklin, vice president (now president) of the International Mercantile Marine Company —a company owning ships under several flags—testified before this commission that "an American-built steamship, suitable for the North Atlantic trade, would cost about 40 per cent more than a British-built steamship." Mr. F. W. Wood, president of the Maryland Steel Company, testified that "the

average difference in cost between American and British ships under present conditions is from 30 to 50 per cent."

Shortly after the present war began a large Atlantic coast shipbuilder estimated the general difference between the cost of constructing steel merchant vessels in the United States and Great Britain to be about 30 per cent; another gave an estimate of 45 per cent. One shipbuilder stated that on the type of tonnage supplied by him, English yards would bid $37.50 per deadweight ton against the lowest American bid of $55; another stated that the bid in England would be $32 as against $50 in the United States. While the exact difference between American and foreign costs cannot be stated, all are agreed that the American costs have normally been higher. The normal difference in cost, whatever it may have been, was enough to enable the foreigner to underbid successfully American shipbuilders, and the result until the coming of war conditions was that an American company desiring to increase its fleet usually ordered the ships built abroad, and then operated the vessels under some foreign flag.

The chief causes that accounted for the higher cost of building ships in this country than in Great Britain or Germany were (1) the higher and more unsteady prices of materials in the United States, (2) the higher labor costs, and (3) the small amount of tonnage constructed in American yards. The first of these causes is no longer a factor of great importance, but the second and third causes normally operate against the American shipbuilders.

1. Until the latter half of the year 1910 the shipbuilders on the Clyde and Tyne were usually able to secure their steel plates more cheaply than they could be obtained in an American shipyard, because steel plate prices were lower than in the United States and because the British builders usually constructed several ships at once of the same design. Materials and equipment for several vessels can be secured more economically than they can be obtained for one or two ships, just as a real-estate operator can buy the materials for several houses to be constructed simultaneously at a lower cost per house

than he could buy the materials for a single house. Likewise, a British builder had the advantage of the buyer who can duplicate his orders frequently. The steady buyer who purchases large quantities is the one who secures the lowest bids. It was also a more general practice for British shipyards and iron and steel mills to be under a common management.

Since 1910 the price of steel plates has been somewhat lower in the United States than in Great Britain, and American shipyards are no longer at a disadvantage in that regard.[1] American shipbuilders have also testified that the fluctuations in the price of steel in the United States are much greater than in Great Britain, and that this fluctuation is a handicap in bidding for contracts. Three reasons have been assigned for the larger variations of steel prices in this country than in the United Kingdom. One cause is that of the duty which the United States places upon imported steel. This duty excludes foreign-made steel and steel products from the United States, and causes the prices of steel in this country to vary with the changing conditions of domestic production and consumption, and eliminates the steadying influences upon prices that result from enabling the buyer to draw upon a world market. The tariff on steel, moreover, has sometimes resulted in American steel being sold to foreign shipbuilders cheaper than to American. The president of the American Shipbuilding Company, for example, testified before the Merchant Marine Commission, at Cleveland, June 28, 1904, that

> recently one of our largest steel mills sold abroad 100,000 tons of steel plate. They delivered it, I understand, at Belfast, at $24 a ton. That would practically mean, with ocean rates as they now are, $22 a ton at tidewater (in the United States). They are charging us to-day, at Pittsburgh, $32 a ton.

From the point of view of the manufacturer of steel, there may have been good business reasons for disposing of his surplus product at a reduced price to the foreign buyer, instead of depressing the price at home by selling the surplus upon

[1] *See* U. S. Commissioner of Navigation, *Annual Report, 1916*, p. 114.

the domestic market; but the depressing effect of this policy upon the American shipbuilding industry was unquestionable.

The greater fluctuations in the United States are also traceable, in part, to differences in the methods of conducting the pig iron trade. In Great Britain the warrant system prevails. The warrants which represent the pig iron stored in storage yards are readily accepted as collateral for loans; they change hands freely; they not only create a broad pig iron market, in which many buyers and sellers are always ready to do business, but also result in accumulations of pig iron, even in times of depression; and they generally steady prices. In Germany pig iron price fluctuations are also reduced to a minimum, because in that country the syndicate plan prevails, prices and output being regulated coöperatively. In the United States the warrant system has not yet been developed on a large scale, and the syndicate plan is prevented by law. The United States Steel Corporation has, as the largest single purchaser of pig iron, endeavored to steady prices, but the fluctuations have been greater than in Great Britain or Germany.

The variations in the price of steel required in shipbuilding in Great Britain, moreover, are lessened to some extent by the coöperation of the steel-manufacturing and shipbuilding industries. The celebrated British firm of Vicker, Ltd., is an instance of the combination of steel manufacturing, armor-plate making and shipbuilding under a single management. In 1900 Dr. John Franklin Crowell, formerly Commerce Expert for the United States Bureau of Statistics, said in a report on the shipping industry of the United States:

> Steel production is the fundamental industry with regard to shipbuilding, and the chief obstacle in the evolution of the latter industry in the United States to-day is the fluctuation of prices and the lack of stability in the steel market. Just as bridge building has had to expand into steel manufacture, so will steel shipbuilding have to absorb steel producing for its own protection from impossible prices, which interfere so seriously with the even tenor of industry.

The accuracy of this analysis is evidenced by the efforts the American shipbuilding industry has made to bring steel making and ship construction under a common control. The movement has centered mainly around the Bethlehem Steel Corporation, which now controls four large steel shipbuilding concerns: The Maryland Steel Company, at Sparrow's Point, Md.; Harlan and Hollingsworth, at Wilmington, Del.; the Fore River Shipbuilding Company, at Quincy, Mass.; and the Union Iron Works, at San Francisco. The Bethlehem Steel Corporation is now the largest shipbuilding company in the United States. In March, 1916, when 901,371 tons gross of steel merchant shipping were building in all American shipyards combined, 341,039 tons, or about 38 per cent, were under construction in the plants of this company. It was also announced in 1917 that the United States Steel Corporation was preparing to enter the shipbuilding business on a large scale through its subsidiary, the American Bridge Company.

2. Although the handicap of higher steel plate prices has disappeared, that of higher labor costs remains an obstacle which the American shipbuilder may, under normal conditions, find it difficult entirely to overcome. Although it is not probable that the labor costs per ton of shipping constructed in American yards will always be higher than in foreign yards, there was, until the European War raised wages in Great Britain, no immediate prospect of American builders being able to reduce those costs to the foreign level. Labor costs are a function of two variables: wages and the units of work performed; consequently, it is difficult to compare accurately the labor costs in American and foreign shipyards. Wages can be compared without great difficulty; but the labor costs at home and abroad per unit of product in the various operations connected with building a ship cannot readily be contrasted; indeed, the data required for such a comparison probably do not exist.

The scale of wages paid in American shipyards before the war was unquestionably higher than in foreign yards. The Merchant Marine Commission stated in its report that—"evi-

dence before the commission, notably in the important hearing of November 19, 1904, at Newport News, shows that wages in American shipyards are from fifty to one hundred per cent above wages of similar labor in Europe." The commission, however, is of the opinion that "both the labor and the administration in American shipyards are more efficient than in foreign shipyards, though this superiority is far from bridging the entire difference in cost."

Shortly before the European War changed labor costs in Great Britain an official of the Newport News Shipbuilding and Dry Dock Company estimated the labor costs to be from 40 to 65 per cent higher in American yards than in Great Britain, the proportions varying for different classes of labor; and an officer of the Wm. Cramp & Sons' Ship and Engine Building Company, of Philadelphia, made a general estimate of 50 per cent.

The lower labor costs in British shipyards, as compared with American, result not only from the lower wages paid, but also from two other causes: the standardizing of processes, and the large amount of labor done on the piece-work system. The builder who constructs several cargo steamers at the same time, and can repeat his operations, as a whole or in large part, several years in succession, can secure both materials and labor at an economical figure. His workmen repeat their tasks and increase their efficiency, the builder standardizes his processes, and the piece-work plan of payment becomes possible. The great success achieved by Americans in the economical manufacture of stationary and locomotive engines, machinery and tools has been the result mainly of standardizing the parts and the processes. The success of foreign shipbuilders is to a large extent due to the same cause.

3. The German, and especially the British, shipbuilders have had the benefit of doing business on a large scale. British yards annually launched from 1,500,000 to over 2,000,000 tons of shipping, and for a number of years over half of the output was sold to foreign buyers. In 1913, before war conditions prevailed, British shipyards constructed 2,203,529 tons

gross of shipping, 1,932,153 consisting of merchant and 271,376 of naval tonnage. The proportions of the merchant tonnage sold to foreign buyers had declined somewhat by this time, 1,399,770 tons of the total being built for home shipowners and 59,974 for British colonials. The remainder (21½ per cent) was widely scattered, numerous orders being filled for the shipowners of Holland, Norway, Brazil, Argentina, France, Austria-Hungary, Germany, Sweden, Russia and many other countries.[1]

Before the war British yards thus constructed about five tons of merchant shipping to one built in America; and the British builders had the advantage of a world market, where the fluctuations in demand, although large, are much less than are characteristic of a market restricted to but one country, and that a country whose shipping engaged in international trade comprised less than one-seventh of its total marine. In the same year, 1913, the shipyards of Germany constructed 465,226 tons gross of merchant shipping, exclusive of a very considerable tonnage composed of river craft built at the yards located on the upper rivers. A naval tonnage of 148,000 was also launched in Germany, making a total, exclusive of certain river craft, of 613,326.

The British builders have the advantages resulting from large-scale production, from specialization in work, and from repetition of orders. The typical yard on the Clyde is one having several ships of the same or similar design in simultaneous construction. The usual conditions prevailing in an American shipyard were well described by Mr. Lewis Nixon in 1900, who said:

> In one of the largest shipyards in this country there are five slips, each capable of building a *Campania*, and recently on one was a tug, on another a battleship, on another a ferryboat, on another a yacht, and on another a revenue cutter. It is absolutely impossible to practice economies under such circumstances, and

[1] Lloyd's Register of Shipping, "Annual Summary of the World's Shipbuilding," 1913, pp. 2 and 5.

build the ships so that they would compare favorably in cost with ships built abroad.

The relatively higher construction costs in American iron and steel shipyards not only made it impossible for them to bid successfully against foreign shipbuilders, but made it difficult for them to obtain the larger amounts of capital required in the iron and steel shipbuilding industry. High costs and low profits made the shipbuilding industry, after the Civil War, less attractive to capital than railroads, land and real estate, or mineral and industrial fields for investment and speculation.

Present Conditions and Future Prospects

In 1917 the shipyards of the United States became more active and have since had more orders on hand than at any time in their history. On May 1, 1917, more than 2,250,000 tons gross of merchant shipping were under contract; and the United States Government had also placed orders for an unusually large number of war craft. The orders for merchant vessels have steadily increased, for not only are American shipowners placing orders but so also is the United States Shipping Board. Foreign shipowners, moreover, are placing orders in the United States, 125,000 tons gross having been so booked by July 1, 1916. The conditions of international shipping and shipbuilding since the second year of the war have been largely non-competitive. "The merchant shipyards of the allied countries launched 2,271,607 gross tons of merchant ships in the calendar year 1913, and during the calendar year 1915 only 769,872 gross tons, a falling off of 1,501,735 gross tons." [1] The favorable situation was soon appreciated by American and foreign shipowners, to the great advantage of the country's shipbuilding industry.

The steel shipbuilding plants of the United States are now rapidly increasing their capacity, they are making improve-

[1] U. S. Commissioner of Navigation, *Annual Report, 1916*, p. 21.

ments, and are approaching a point of efficiency which it is hoped will enable them to construct vessels for the international trade even after normal competitive conditions return. An unusual demand for merchant tonnage is likely to continue for several years after peace is declared, because a large amount of ocean tonnage is being permanently destroyed. Normal conditions in Europe after the war, moreover, may be quite different from what they have been in the past. The differences in costs of construction will doubtless be narrower than they were.

Though the non-competitive basis of the present boom in shipbuilding should not be overlooked, there are a number of reasons why the future outlook for the American steel shipbuilding industry is brighter than it has previously been at any time since the Civil War:

1. The large steel shipyards of the seaboard have begun to standardize their output, and American shipowners are standardizing their orders on a scale never approached in the United States since the advent of steel ship construction.

2. The efficiency of American shipbuilders is being enhanced alike by the movement toward standardization, and by the introduction of improved methods and facilities.

3. The price of steel ship plates in the United States has, since 1910, been lower than in Great Britain, and the difference in favor of the United States is likely to be increased.

4. The tendency of the steel shipbuilding and the iron and steel industries of the United States to coöperate closely and even to come under a common management is making rapid headway.

5. Labor costs may again be against the American shipyards, but the handicap should be less than it was in the past. Although the normal rate of wages in British and Scotch shipyards is not likely to be maintained permanently at the war level, it will probably be much higher than it was in 1914. Labor costs in American shipyards will, moreover, be influenced favorably by the standardization and increased efficiency that are now being accomplished.

6. The demand for merchant tonnage should be large, even after the normal capacity of foreign shipyards again becomes available. Coastwise shipping will doubtless increase after ocean freight rates in the foreign trade return to a normal level; the increase is, in fact, likely to be more rapid than in the past, because the Panama Canal provides an all-water route between the seaboards. The demand for a larger American merchant marine in the international trade, moreover, is likely to become more persistent as the need for wider foreign markets for American manufactures becomes better understood. American shipbuilders will need to share the construction of this foreign trade tonnage with their foreign rivals, but it should become a permanent source of construction orders as well as of a steadily increasing amount of profitable repair work.

7. The government's naval program for the future can hardly be forecasted accurately, as it depends upon many international contingencies. Unless a naval and military disarmament program is enforced after the close of the war, the private shipyards of the United States may look forward to more orders for warships than were being placed before the comprehensive naval program of 1916 was undertaken.

Except for the placing of orders for warships and other public craft it is not likely that the shipyards will receive much direct aid from the government after the close of the war. Construction bounties to encourage shipbuilding are paid in various countries—France, Italy, Austria-Hungary, Japan, Spain and Russia—but their results in countries where economic conditions are unfavorable to the industry have been unsatisfactory. There are well-recognized economic objections to aiding any form of manufacturing industry by means of government bounties. Industries thus aided develop in response to an artificial stimulus in so far as the bounties are successful, instead of advancing step by step with the increase in the economic demand. Moreover, industries built up by bounties tend to become dependent upon the bounty, instead of independent of government aid. The industry based on

economic demand has a stable foundation; whereas the industry whose growth has been quickened by state bounties rests upon an insecure basis.

It would seem desirable, however, that the coastwise trade should continue to be open only to American-built vessels. The steady growth of the coastwise merchant marine in the past has clearly shown that the right of purchasing foreign-built vessels is not necessary to the success of the coastwise carrying trade. The present war, also, has made it clear that an efficient shipbuilding industry is a national asset, the future existence of which should not be made wholly dependent upon its possible ability to compete against foreign shipyards. The clause in the United States Shipping Act that opens the coastwise trade to foreign-built vessels acquired from the Shipping Board and to foreign-built vessels operated by corporations in which the United States is a stockholder and the law of October 6, 1917, endanger the shipbuilding industry unnecessarily.

It is desirable that the policy of permitting the free importation of shipbuilding materials should again be adopted as fully as it was in the Panama Canal Act of 1912. The Tariff Act of 1913 does not exempt imported materials for the repair of foreign vessels and of American ships in the coastwise trade.

The surest way of all to strengthen the American shipbuilding industry is to create a larger demand for American ships. The United States Government can best aid the shipbuilding industry by encouraging the American merchant marine engaged in foreign commerce. With a growing volume of coastwise and registered tonnage under the flag of the United States, it is entirely possible that the economic changes referred to above will enable American steel shipbuilders to conduct a large and profitable business.

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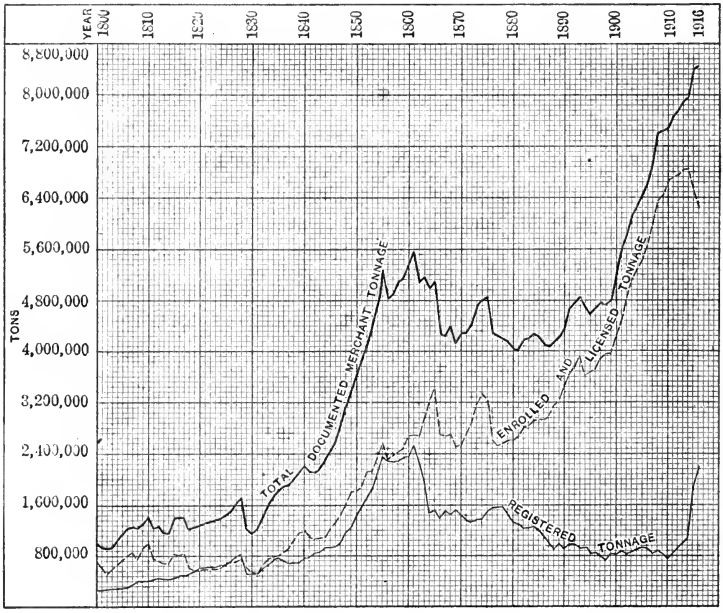
CHAPTER XXX

CONDITION OF THE AMERICAN MERCHANT MARINE IN THE FOREIGN TRADE

Statistics of past and present ocean tonnage of the United States, 447. Diagram of documented merchant marine, 448. Proportion of foreign trade carried in American vessels, 449. Causes of decline of merchant marine in foreign trade, 450. Substitution of steamers for sailing vessels and of iron for wooden hulls, 450. Advantage of Great Britain in ship construction, 451. Restrictions on vessel registry, 451. Withdrawal of subsidies in 1858, 451. Effect of the Civil War, 452. Policy of government after Civil War, 452. Neglect of American navy, 452. Government aid in foreign countries, 453. Higher operating costs, 454. Effect of economic causes, 458. Present condition and future prospects of American shipping, 459. Future prospects improving, 459. References, 460.

THE decline in the tonnage of shipping engaged under the American flag in the foreign trade of the United States and other countries prior to the war in Europe is so well known that it will be necessary, in this connection, to present only a brief review of the facts and figures regarding the past and present status of our deep-sea merchant marine. The tonnage of American vessels engaged in the foreign trade—our registered tonnage as contrasted with the "enrolled" shipping engaged in the domestic trade—reached its maximum in 1861, when a total of 2,496,894 tons gross register was reached. At the close of the Civil War the total was nearly 1,000,000 tons less than at the opening of that great struggle. Until 1880 the figures averaged about 1,500,000 tons; but in 1880 a decline began that continued with but occasional interruption until 1898, when the minimum of only 726,213 tons was reached. The Spanish-American War of that year, and the demands of our increased commerce, brought the figures above 800,-

000 the next year, and the subsequent increase raised the total of 1905 to 943,750. The increase, however, proved to be but temporary; by 1910 the registered tonnage had again fallen to 782,517. Another advance then occurred, 1,066,288 tons being registered under the United States flag in the foreign trade on June 30, 1914. Just before the outbreak of the war



Documented Merchant Tonnage of United States, 1800-1916

in Europe the registered merchant tonnage engaged in the foreign trade was but two-fifths as large as it had been fifty-four years earlier.

While the registered tonnage was falling off, the enrolled shipping of the United States steadily increased. The documented gross tonnage of the merchant marine enrolled and licensed for the coastwise and Great Lakes trade has since 1831 permanently exceeded the registered tonnage engaged

in the foreign trade. In 1861 when the tonnage engaged in the foreign trade was at its highest point, the coastwise and Great Lakes marine exceeded it by 207,650 tons gross, and instead of declining during the Civil War it advanced from 2,704,544 tons gross in 1861 to 3,381,522 in 1865. Thereafter it fluctuated, but gradually rose to 4,286,516 tons gross in 1900 and to 6,668,966 in 1910. It reached its highest point in 1914 with a gross tonnage of 6,818,363. It then declined to 6,244,550 in 1916 because the profitable ocean freight charges occasioned by the war caused numerous coastwise vessels to be registered for the foreign trade.

The total documented merchant marine increased from 5,539,813 tons gross in 1861 to 7,928,688 in 1914, the United States ranking second only to Great Britain as a maritime country even before war was declared in Europe. Indeed, the entire merchant tonnage of the United States is larger than these figures indicate because there are many barges, harbor craft, and other unrigged vessels that are not regularly documented with the United States Commissioner of Navigation. The United States Census Office in 1906 reported an undocumented tonnage of over six and a half million tons gross and an aggregate merchant tonnage of 12,893,429. The registered merchant marine of the United States in the foreign trade, the enrolled and licensed tonnage, and the entire documented tonnage of the United States since 1800 are graphically shown in the accompanying diagram.

The decline in the tonnage engaged in the foreign trade after 1861 was rapid. Although, before the Civil War, American vessels conducted a large international carrying trade for foreign countries as well as for the United States, they came in time to carry but a small part of the country's foreign trade. In 1861, 65.2 per cent of the value of the foreign trade of the United States was still being carried in American vessels, but the proportion fell to 27.7 per cent in 1865; 35.6 per cent in 1870; and to 8.7 per cent in 1910, rising slightly to 9.7 per cent in 1914. The American vessels account for a larger proportion of the total vessel entrances

and clearances in the foreign trade of the United States because ships make frequent trips in the short-distance foreign trade, but the percentage for entrances and clearances also declined from 70 per cent in 1861 to 26 per cent in 1914. In that part of American commerce that is open to ships under foreign flags, American vessels have not been able to hold their own in competition with their foreign rivals; what progress American shipping made before the European War was in the carrying trade of which it has had an exclusive monopoly.

Causes of Decline of Merchant Marine in the Foreign Trade

The decline in the tonnage of the American marine engaged in international trade is easily explained, and is fully accounted for by the following eight causes:

1. The gradual but steady substitution of steamers for sailing vessels, and of iron for wooden hulls after 1850, transferred to the United Kingdom the superiority which the United States had possessed up to that time in the construction of ships. The iron industries of Great Britain in 1850 were 25 to 30 years in advance of those in the United States, and American manufacturers were unable to compete with the British either in the production of iron for hulls or of machinery for motive power. The construction of iron ships in the United States did not begin much before 1870, and then in but a small way.[1] As was shown in the preceding chap-

[1] "The early statistics of iron shipbuilding in the United States have never been fully compiled. The tables of the Bureau of Navigation in the Treasury Department begin in 1869, with an iron tonnage built of 4,584 tons out of a total tonnage built of 275,230 tons, or 1.6 per cent. We know that iron vessels were built before this date in this country—several, in fact, before the war—but they were isolated cases, and probably in no previous year was the proportion as great as at the time when the records begin. In 1870 this proportion was three per cent, as against eighty-two per cent, in England." (J. R. Soley, p. 603 of *The United States,* edited by N. S. Shaler.)

ter, the cost of constructing iron and steel vessels in the United States has normally been greater than in foreign countries. This was important in the shipping industry because the registry laws of the United States, until 1912 and 1914, with certain exceptions, restricted registry for the foreign trade under the American flag to American-built vessels. Great Britain was prepared to change from wood to iron, and from sail to steam, and the United States was not; the result was that Great Britain secured a long lead over the United States not only in building but also in operating ships.

The advantage to Great Britain occasioned by the shift from wood to iron and steel was promptly recognized in British marine insurance circles. While the marine insurance business in the United States declined, British underwriters discriminated against wooden vessels. They quoted favorable premiums on iron and steel vessels, of which but few were operated under the American flag until the eighties.

The lead of Great Britain in deep-sea shipping was maintained even after steel shipyards had been developed in the United States, in part because the higher construction costs burdened the American registered merchant marine with capital costs substantially above those of vessels operating under foreign flags. These costs made the initial investment greater, the interest charges higher, and the outlay for depreciation, insurance and taxes greater.

2. While the shift from wood to iron and steel and from sailing vessels to steamers was causing a revolution in the business of shipbuilding and navigation, two unfortunate causes tended to weaken the power of the American maritime interests to compete with those in Great Britain. One cause was the withdrawal in 1858 of the support which the Federal Government had given shipping under the laws of 1845 and subsequent years. The withdrawal of these subsidies came at a time when the merchant marine especially needed support in meeting the competition of foreign-built iron vessels. The three small and short-lived contracts entered into immediately after the close of the Civil War were

not sufficient to stem the decline, nor were the mail payments that were provided for in the Mail Contract Act of 1891.

3. The effect of the Civil War upon the American deep-sea merchant marine was disastrous, because the shock of the war came at a critical epoch in the evolution of shipping interests; at a time when American shipbuilders and shipowners needed support and assistance in tiding over the period of transition from sail to steam and wood to iron. Instead of receiving aid to enable it to meet foreign competition, American shipping was for four years heavily taxed, and was either idle for want of traffic to carry, or, subject to capture by Confederate cruisers, the most destructive of which were fitted out in the shipyards of Great Britain, the most serious maritime rival of the United States. The registered tonnage under the Amercian flag in 1861 was 2,496,894; five years later it was only 1,387,566. About 800,000 tons of American vessels were sold to foreign rivals or transferred to a foreign flag during the war; Confederate cruisers captured about 100,000 tons; over 150,000 tons were lost at sea; nearly 100,000 tons were bought by the United States and converted into war vessels; and the average number of vessels was annually abandoned and taken from the register because worn out.

4. It would seem that the government of the United States would have been quick to give assistance to the merchant marine at the close of the war. No industry had suffered more during that conflict; none had greater need for, nor a greater claim upon, government support. Congress supported manufactures by maintaining a high protective tariff, but failed to take effective measures to build up the merchant marine. The only assistance given to shipping by the United States Government was the legislation providing for the mail services between New York and Brazil, and between California and Hawaii, Japan, and China. These subsidies covered only a few routes, and those of minor commercial importance. Moreover, the assistance was withdrawn at the end of ten years.

Indeed, Congress burdened American shipping in various ways: Vessels that had been transferred to foreign flags during the Civil War were refused readmission to American registry; the heavy war revenue taxes on shipping were not withdrawn until 1868; shipbuilding materials imported to be used in constructing and equipping wooden vessels for the foreign trade were not exempted from import duties until 1872; and it was not until 1890 that Congress exempted from duty materials to be used in constructing iron and steel vessels for use in international commerce. Liberal payments for carrying the foreign mails under time contracts, moreover, were not made until 1891.

5. The neglect of the American navy for twenty years after the Civil War deprived the shipbuilding and maritime interests of one of the most effective aids the government might have rendered. By the close of the Civil War, wooden vessels had become antiquated for naval purposes, but the United States took no steps to modernize its navy by constructing iron steamers. By delaying the construction of war ships, the United States avoided the use of iron, which had been superseded by steel when it began to build up its present navy, and this had its advantages; but the postponement of the naval program from 1865 to 1885, and later, delayed the reorganization of the shipyards and the substitution of plants for building iron and steel steamers, in the place of yards for constructing wooden sailing vessels.

6. From the account given below of the policy of France, Germany, the United Kingdom, Japan and other countries, toward their merchant marines, it will be seen that those countries gave their shipping interests much more government support than the United States gave the American merchant marine. Without considering whether the policy of these foreign rivals has been wise, or whether the United States should have given stronger support to its merchant marine, there can be no question that the aid given to foreign shipping made competition on the part of the American marine more difficult. In addition to other handicaps under which the maritime in-

terests of the United States labored—the more advanced condition of the iron and steel industries in Europe, the lead obtained by the United Kingdom in the international carrying trade, etc.—was added the greater government support given to foreign shipping.

7. Shipping under the American flag in the foreign trade has been handicapped by operating costs substantially higher than those of foreign vessels. Had the policy of free shipping prevailed there would nevertheless have been no assurance that the registered merchant marine would have been increased or even maintained after the Civil War. The largest operating handicap has been the cost of labor. The watch officers of American vessels were required by law to be American citizens, and they demanded and usually received higher pay than did the officers of foreign vessels. The crews of American vessels likewise have long received higher wages than are paid men on foreign vessels, even though the seamen on American ships were not required to be American citizens. From 43 to 50 per cent of the crews of American merchant vessels are citizens of the United States, including both native born and naturalized, and they set the scale of wages paid to all men employed on American vessels. Foreign vessels have the advantage of lower wages in the identical labor markets that supply both American and foreign vessels. In 1914, when numerous vessels were transferred from foreign flags to American registry, the crews in many instances demanded the increased wages generally paid on American vessels, and their demands were granted. The wages handicap, of course, is greatest in case of routes served by different labor markets. The following statement was made by the United States Commissioner of Navigation in 1909:[1]

> American capital is not predisposed toward the sea at present. Much less is American labor so predisposed. With a vast amount of productive land, permitting almost any industrious man who wishes it to own his home and raise a family, the United

[1] U. S. Commissioner of Navigation, *Annual Report, 1909*, p. 63.

States stands in a different relation to the ocean than do England, Norway, Italy, Japan, or even Germany. The surplus population of those countries must emigrate or follow the sea. Low as are the wages of German sailors, they compare not unfavorably with wages in German factories. In all branches of ocean transportation where one terminal is at a foreign center of sea labor, such as Liverpool, Antwerp, Genoa, Marseille, or Hongkong, a steamship under the American flag is not at an insuperable disadvantage compared with the same ship under a foreign flag, because under either flag the ship can draw its crew from the same labor market. But in trade to South America, for example, where there is no native seafaring population, the conditions are different. Those wages to a very great extent are governed by the general rates of wages of the country, and those general rates in turn are the product of many factors, of which legislation is not usually the principal. Evidently the American, wherever he buys his steamer, cannot, under normal conditions, send it from New York to Rio in competition with a foreign ship to the same port from any of the maritime centers of Europe. Partly on account of higher wages, British shipping is slowly yielding its supremacy, for British steam tonnage in ten years has declined from 53 per cent of the world's total to 45 per cent. As Germany has no coasting trade, her shipping must go foreign.

The labor cost incurred in the operation of a vessel depends not only upon the rate of wages, but also upon the number of officers and men on board. The number of men in the case of American vessels is regulated, in part, by statute and in part by the United States Steamboat-Inspection Service.[1] The requirements are stricter than those of Great Britain. The cost of food and supplies for the crew is likewise a factor in the labor cost, and it, too, is higher than on most foreign vessels. The stricter legal requirements concerning food and water are only partly responsible for the higher subsistence costs incurred on American vessels; larger quantities than are legally required are frequently provided as a means of attracting and holding competent crews.

The handicap facing American vessels because of higher

[1] *See* chap. xxiv, p. 366.

labor costs cannot be shown by an average figure. The difference depends upon the type of ship, the route over which it operates, the relative availability of labor markets and other varying conditions. When the United States Steel Products Company transferred nine steamers from British to American registry the size of their crews increased from 373 to 393 members, or 5 per cent; their monthly wage bill from $12,478 to $17,537, or 40.54 per cent; and their food costs increased 19 per cent. When Grace and Company transferred some of their vessels from the British to the American flag the foreign crew immediately struck for American wages, and the monthly wage bill per steamship rose from $1,991 to $2,773, or 39.2 per cent. The transfer of the steamship *Davis*, operating out of Gulf ports, from the American to the Norwegian flag was accompanied by a reduction in monthly wages from $1,235 to $680. The wage bill of the Standard Oil Company steamship *Brindella* had a monthly wage bill of $1,765 under the American flag, as compared with $936 when it was the German steamship *Washington*.

The handicap of higher labor costs particularly on Pacific routes is increased unnecessarily by the provision of the Seamen's Act of March 4, 1915, which requires fixed proportions of "able seamen" and provides a language test for 75 per cent of the crew.[1] The language requirement especially affects American and Japanese vessels unequally.

Operating costs are not, however, to be judged solely by the outlay for wages and subsistence. Until 1915 American vessels were handicapped somewhat by the measurement rules of the United States in accordance with which their net register tonnage was ascertained.[2] The inspection requirements of the United States Steamboat-Inspection Service also are stricter than those of Great Britain and sometimes result in expensive alteration costs not incurred abroad. Until 1890, moreover, steaming coal was cheaper in Great Britain than in the United States. Since then the price of bunker coal has shifted in favor of the United States.

[1] *See* pp. 367-368.

[2] *See* pp. 114-122.

It is obvious that there are many important operating costs that are not any higher on American than on foreign vessels operating over the same routes, and it is erroneous to judge operating costs as a whole by the wide differences in wage and subsistence costs commonly referred to. Outlays for coal, fuel oil, tonnage dues, pilotage, port services of various kinds, stevedore services, towage, etc., are no higher for American than for foreign vessels, and on particular voyages some of these costs are at times in favor of American vessels. It is likely therefore that the total operating costs under the American flag have not recently exceeded those of comparable foreign vessels by more than from 5 to 15 per cent. According to Mr. Irving T. Bush, the operating costs of a vessel of 3,000 net register tonnage transferred from the British to the American flag and operating between New York and the River Plate were $40,760 before the transfer was made and $42,800 after the vessel was brought under the American flag.[1] Mr. Bush also testified before the House Committee on the Merchant Marine and Fisheries that—

> The average difference in cost of operating an American vessel, which will cost, we will say, $500,000 under normal conditions, such as existed before the beginning of the war, and an English vessel of the same type, will be from $10,000 to $12,000 a year. That is a high type of vessel and the difference in cost of $10,000 or $12,000 a year is not a very large amount. . . . But if you consider that vessels are not operated as single units, but are operated in fleets, and if you take a fleet of 20 or 30 vessels you will find that the difference per year in the operation of such a fleet will amount to from $200,000 to $300,000.[2]

The handicap against American vessels is greater for passenger than for freight carriers, and is greater on long than on short voyages.

[1] Statement of Irving T. Bush, chairman of the New York Chamber of Commerce Special Committee on the American Merchant Marine in the Foreign Trade, in *Monthly Bulletin of the Chamber of Commerce*, Supplement, January, 1915, p. 16.

[2] Irving T. Bush, in *Hearings Before House Committee on the Merchant Marine and Fisheries on H. R. 10500*, 1916, p. 503.

8. The most fundamental reasons for the decline of the tonnage of the American marine engaged in the foreign trade were not political; the chief explanation is to be found in economic causes. During the latter half of the nineteenth century the energy of the American people and their available capital found highly profitable employment in settling the West, in developing agricultural and forest resources, in opening mines, and in providing the wide territory of the United States with transportation facilities. These problems of internal development took the young men of the Eastern States toward the West and away from the sea; while the rapidly growing manufacturing industries in the East gave both native Americans and the immigrants from abroad increasing opportunity to secure remunerative employment.

In a young and rapidly growing country, such as the United States was during that half century, capital as well as labor was scarce, and the domestic industries and trade readily absorbed all the capital the people of the United States could command. The handicaps of the American merchant marine mentioned above were only partly responsible for the flow of capital away from international shipping. It is likely that a decline in registered tonnage would have continued for many years after the Civil War, even if American vessels engaged in the foreign trade had not been handicapped in their competition with foreign vessels. If the financial returns of the American registered marine were too small to attract American capital, this was also true—although in a lesser degree—of the financial returns of merchant vessels operating under foreign flags. It was not until the close of the last century that any considerable amount of American capital was invested in foreign vessels.

Present Condition and Future Prospects of American Shipping

After 1910 the American merchant marine engaged in the foreign trade slowly increased from a gross tonnage of 782,-

517 in 1910 to 1,066,288 in 1914. Then came the war in Europe, which not only created a shortage of deep-sea tonnage and exorbitant ocean freights, but made it desirable to transfer much tonnage to the neutral flag of the United States. By June 30, 1915, the registered tonnage of the United States engaged in the foreign trade had risen to 1,862,714 tons gross; and by the close of the fiscal year 1916 to 2,185,008. This increase of 1,118,720 tons, or 105 per cent, in two years represents a sudden advance unprecedented in the past history of the United States. A large part of the transferred tonnage consisted of vessels that were owned by American capital before the outbreak of hostilities, but which had been operated under foreign flags. Some of the increase was due to the registration of vessels that had formerly been engaged in the coastwise and Great Lakes trade. The remainder of the increase consisted of foreign vessels purchased by American shipping interests, and of tonnage newly constructed in American shipyards. Since the close of the fiscal year 1916 the United States Shipping Board has also become a factor, for it has purchased a number of foreign merchant vessels and has begun a comprehensive program of ship construction.

Although the astounding increase in the registered merchant marine that has occurred since 1914 is based directly upon war conditions, by no means all of the newly acquired tonnage will necessarily be transferred to foreign flags after hostilities close. There was a slow upward trend even before war conditions prevailed. There are evidences that economic conditions in American industry are becoming more favorable for the investment of American capital in the international carrying trade. Capital has increased rapidly during the past decade; the manufacturing and mining industries and the transportation system in the United States have reached a high state of development; and the American people are beginning to have funds available for investment in foreign countries or in ocean shipping. Indeed, a large amount of American money has already been invested in merchant shipping under the flags of other countries. In 1914 the tonnage so owned

and operated was at least a million tons, or nearly as much as the registered tonnage engaged in the foreign trade under the American flag.[1] To secure the investment of American capital in the American oversea marine is no longer a question of making the profits of operating vessels under American registry as large as those to be secured from domestic investments, but of making them as large as those obtainable from shipping under a foreign flag.

The attention of the people and government of the United States has, moreover, been directed toward the development of the foreign trade. Domestic trade may remain paramount, but no longer to the exclusion of interest in foreign markets. This desire to increase the foreign trade will depend in part upon the development of adequate ocean transportation facilities between the United States and the markets of South America and other non-European countries. The accomplishment of this will require the solution of a problem that is partly economic and partly political; in so far as the question is political, the results must be secured by legislation and by adopting an effective mercantile marine policy. Before considering remedies it will be well to review briefly the maritime policy prevailing in foreign maritime countries.

[1] U. S. Commissioner of Navigation, *Annual Report, 1914*, p. 29.

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CHAPTER XXXI

GOVERNMENT AID TO SHIPPING AND NAVIGATION IN FOREIGN COUNTRIES

British aid to shipping, 462. Aid to shipping in France, 468. The German merchant marine policy, 476. Government aid in Japan, 478. Summary of foreign aid to shipping, 482. Specific subventions to domestic lines, 483; and to foreign lines, 483. General navigation subsidies, 483. Shipbuilding subsidies, 484. Reimbursement of canal tolls, 484. Government loans, 484. Miscellaneous payments, 484. Indirect forms of aid, 484. Government-owned steamship lines, 485. References, 486.

Before suggesting remedies for the merchant marine situation confronting the United States it is well to note how shipping and navigation are aided by foreign governments. Particular mention should be made of the merchant marine policies of the countries that are expending the largest sums in subsidies or subventions, or are otherwise most actively aiding their merchant shipping.

British Aid to Shipping

The merchant tonnage of the United Kingdom, including the gross tonnage of steamers and the net tonnage of sailing vessels and excluding vessels of less than 100 tons, was, in 1914 before the outbreak of hostilities, reported in *Lloyd's Register* to be 19,256,766 tons; it had increased 45 per cent since 1900 and 88 per cent since 1890. Much of this growth was due to economic advantages arising from favorable construction and operating costs; the availability of British capital and labor; an immense foreign trade providing adequate cargoes both outbound and inbound; and the national impor-

tance of ocean shipping springing directly from the insular position of the country. It is, however, also due, in part, to the aid rendered by the government and its essentially liberal mercantile marine policy.

The direct government aid to shipping given by the United Kingdom consists of appropriations for maintaining a force of naval reserves, of admiralty subventions paid to the owners of certain vessels, of mail subventions, of government loans and of colonial subventions.

1. In 1914-15 the British Government appropriated £215,849 as "pay, allowances, and contingent expenses" of officers and seamen serving on merchant and fishing vessels; £243,823 as annual retainers, drill money, and lodging allowances to men in the Royal Fleet Reserve who drill a prescribed amount each year in the fleet; and £31,206 to the Royal Naval Volunteers, who receive per diem and capitation allowances. This appropriation for Royal Naval Reserves, as the plan is commonly known, while intended primarily to provide a supply of seamen upon whom the navy may draw to obtain the crews to man war vessels, is of much assistance to the merchant marine. The naval retainers make sea life a more attractive calling, and enable vessel owners to secure seamen more readily.

2. The British Government has at various times paid so-called admiralty subventions to selected lines operating under contracts that contain definite provisions as to the structural material, speed and type of vessels and their availability as auxiliary naval cruisers or transports in time of war. Just prior to the beginning of the present war in Europe but one subvention contract of this kind was in effect—the Cunard contract of July 30, 1903, which runs until 1927 and provides for an annual payment of $729,975. The previous admiralty subvention of the Cunard Line had been only about $72,998; the purpose of the increase was to cover the extra maintenance costs of the large and unusually fast steamers (*Lusitania* and *Mauretania*) that were to be built under the terms of the contract. Their speed and structural characteristics were to make

them valuable to the government as auxiliary scout cruisers and transports.[1]

3. The policy of government loans to private steamship companies was, prior to the war in Europe, applied to but one British company. The same contract of 1903 that gave an admiralty subvention to the Cunard Line, also provided that the government would make a loan of £2,600,000 ($12,652,900) at 2¾ per cent. The company gave as security the two vessels that were constructed with this money, and also the remainder of the company's fleet and its general assets.

The Government has, moreover, the right to charter, or purchase at agreed rates, all or any of the company's vessels at any time, and requires that the company shall remain a purely British undertaking; that its management shall be in the hands of, and that its shares shall be held by, British subjects only; that it shall not give preferential rates to foreigners; and that it shall not unduly raise freights.[2]

The Government has, moreover, the right to charter, or purchase The saving to the company results from the fact that its rate of interest would have been 2 per cent higher had the loan been obtained from private sources.

4. Mail subventions constitute the largest government aid given British shipping. Ever since the adoption of steam power for the transoceanic service, Great Britain has supported many of the strongest and fastest lines of steamers under the British flag with liberal mail contracts. From the beginning the mail payments have been to some extent subventions granted for four purposes: (1) to secure more frequent and faster mail services to foreign countries, and to the British possessions, than could otherwise be secured; (2) to encourage the building of merchant vessels that may be of service to the government in time of war; (3) to strengthen British shipping, so as to enable it to meet the commercial compe-

[1] U. S. Bureau of Foreign and Domestic Commerce, *Government Aid to Merchant Shipping*, 54.

[2] *Ibid.*, 55.

tition of its rivals more easily; and (4) to promote the foreign trade of the nation. Great Britain has long recognized that her economic as well as her military progress is dependent upon success in developing and maintaining a large and prosperous merchant marine.

The mail subventions of Great Britain are paid to lines operating under definite mail contracts, the first of which was entered into in 1838 with the Peninsular Company, which in 1845 became the Peninsular and Oriental Company, for a weekly mail service between England, Spain and Portugal. Soon after this, mail contracts were also awarded to the Cunard Line, to the Royal Mail Steam Packet Company, and to the Pacific Steam Navigation Company. In 1912-13 twelve British lines were operating under mail contracts yielding a total of $2,847,000. Of this, $645,000 was contributed by British colonies; $680,000 was made up by sea postage; and a net amount of $1,522,000 was paid by the British Government.[1]

The terms of these mail subvention contracts vary, but it is evident that they are designed to promote the commercial and naval interest of Great Britain as well as to provide improved mail services. They variously prescribe conditions as to the carriage of mails over definite routes; the frequency of the service; the size, speed and structural material of the sub-

[1] The lines receiving mail subventions are: South Eastern and Chatham Railway Company—Dover to Calais; Great Eastern Railway Company—Harwich to Hook of Holland; Cunard Steamship Company—Liverpool to New York; Royal Mail Steam Packet Company—Southampton to Trinidad; Pacific Steam Navigation Company—Liverpool to Falkland Islands, Liverpool to Callao, Panama to Valparaiso; African Steamship Company and British & African Steam Navigation Company (Ltd.)—Liverpool to West Coast of Africa; Union-Castle Mail Steamship Company (Ltd.)—Southampton to Ascension to St. Helena; British India Steam Navigation Company (Ltd.)—Aden to Zanzibar; Union-Castle Mail Steamship Company (Ltd.)—Southampton to Canary Islands; Peninsular & Oriental Steam Navigation Company—Brindisi to Bombay, Brindisi to Shanghai, Brindisi to Adelaide; Canadian Pacific Railway Company—Liverpool to Hongkong; Messrs. Allan Brothers & Co.—United Kingdom to Newfoundland.

sidized vessels; the right of the government to charter or purchase the vessels at agreed amounts; an agreement not to sell to foreigners; the rendering of financial statements; and less commonly some general or specific provision as to the freight charges and passenger fares that may be collected.

5. So-called colonial subventions have at times been paid by the British Government for the express purpose of encouraging steamship services between British colonies. In 1912-13 the only payment of this kind reported was one of $121,662 to the Royal Mail Steam Packet Company for a fortnightly service from Barbados to British Guiana. The payment was made under a contract effective August 29, 1907, and $60,831 was contributed by the colonies. These colonial subventions are not essentially different from some of the British mail subventions which are also shared in by colonial governments and aim, among other things, to provide ocean transportation services to and from British colonies.

6. The methods of direct aid to British shipping have at times included so-called trade subventions, the primary purposes of which were commercial, and the carriage of the mails was only incidental. At present no contracts of this kind are in effect. In 1900, however, in order to develop the fruit trade from Jamaica to the British Islands, the British Government made a contract with Elder, Dempster and Company for a fortnightly steamship service between Jamaica and England. The steamers were to have a speed of 15 knots, to be capable of carrying 3,000 tons of cargo, each ship to be equipped for carrying 20,000 bunches of bananas, and each ship to have accommodations for 100 first-class and 50 second-class passengers. The company was also required, during the 10 years of the duration of the contract, to purchase "not less than 20,000 bunches of bananas for each voyage from Jamaica."

Another clause in the contract fixed the maximum passenger fares that might be charged. The company was, of course, required to carry the mails between Great Britain and Jamaica; but the mail service was not the main feature

of the contract. A trade subsidy was also at one time paid to the Pacific Steam Navigation Company for a service to the west coast of South America.

The direct aid in the form of subventions to specific lines rendered by the British Government in 1912-13 amounted to $3,698,662. Of this, $705,789 was contributed by British colonies, and $679,996 was made up by sea postage, leaving a net outlay of $2,312,877. In addition to this it paid over $2,388,000 under the Royal Naval Reserve plan in the year 1914-15.[1] Additional money was paid for the carriage of the international mails handled otherwise than under contract, but such pay is not in the nature of a subvention or subsidy.

Some of the British colonies pay substantial subventions to steamship lines, quite aside from the contributions that they make to the lines subsidized by the home government. The total sums provided by Canada for "mail subsidies and steamship subventions" for the year ending March 31, 1916, amounted to $2,932,000. Smaller amounts are paid by the Commonwealth and Provincial governments of Australia, and by New Zealand and the Union of South Africa. Contributions to subventions are made by the Barbados, Guiana, Trinidad, the Falkland Islands, India, Ceylon, the Strait Settlements, Hongkong, and the British West African possessions. In 1909 the United States Commissioner of Navigation reported that the total annual payments to aid British shipping made by Great Britain and her colonies aggregated $9,689,000.

British shipping is aided indirectly by the privilege of importing free of duty all materials for constructing, repairing or equipping vessels; by the free shipping policy which has, since 1849, granted the privilege of British registry to foreign-built vessels; by awarding extensive naval orders to private shipyards; and by liberal navigation laws.[2] The British Parliament has adhered to the policy of subjecting British ship-

[1] Including the Royal Naval Reserve, the Royal Fleet Reserve, and the Royal Naval Volunteers.

[2] U. S. Bureau of Foreign and Domestic Commerce, *Navigation Laws.*

ping to only a moderate degree of regulation; indeed, it has, on various occasions, refused to accept the somewhat more stringent recommendations of the British Board of Trade, which is the administrative body charged with the enforcement of the navigation laws of Great Britain.

Aid to Shipping in France

France has a more direct, comprehensive and liberal system of government aid to shipbuilding and ocean navigation than Great Britain. The French Government each year pays over $13,000,000 in specific subventions and general subsidies. Her merchant marine in 1914, excluding vessels of less than 100 tons, amounted to but 2,319,000 tons.[1] However, most of this tonnage was acquired in recent years; it has increased 71.7 per cent since 1900.

The French policy of direct aid is characterized by the large sums paid in the form of general subsidies as distinct from specific subventions. The terms "subsidies" and "subventions" are frequently used interchangeably, but for lack of better terminology the former may well be applied to general payments made to all shipping under prescribed conditions, and the latter to payments made to selected lines operating under specific contracts.

1. France has paid shipbuilding or construction bounties ever since the enactment of her original subsidy law of January 29, 1881. The amounts paid to promote shipbuilding were increased by the act of January 30, 1893, and as this act still applies in case of vessels constructed under mail subvention contracts in force on April 18, 1906, the bounties provided by it may be briefly summarized. They are $12.55 per ton for iron and steel ships; from $5.79 to $7.72 per ton for wooden vessels, according to their size; $2.90 per 100 kilos for new engines, boilers and auxiliary machinery; and $2.90 per 100 kilos for materials or parts used in repairing hulls, engines, boilers, etc. The law of April 7, 1902, continued these

[1] *Lloyd's Register of Shipping, 1914.* Steam tonnage gross and sail tonnage net.

subsidies, but provided that they would not be paid on ships built in shipyards, the foreign employees of which exceed 20 per cent of the total force. Construction subsidies were again changed by the act of April 18, 1906, which now applies, except in the case of vessels built under mail subvention contracts then in force. It leaves the payments on wooden vessels the same as they were under the act of 1893, but increases those on iron and steel vessels. It, moreover, treats iron and steel steamers and sailing vessels differently, the former receiving $27.99 per "gross ton" (including various spaces not included in gross register tonnage) and the latter $18.34. The payments on engines, boilers, etc., however, remained unchanged. The former limit of 20 per cent for foreign employees is changed to 10 per cent, and vessels built for foreign orders receive only seven-tenths of the full subsidy. It is also provided that the construction subsidies should be paid direct to the shipbuilder instead of indirectly through the vessel owner, as was formerly the practice. The construction subsidies paid in 1913 were $42,500 under the act of 1893, and $3,442,000 under the act of 1906, a total of $3,484,500.

2. The French policy of paying general navigation subsidies likewise dates from the act of January 29, 1881, about $1,500,000 having been paid annually until the enactment of the law of 1893. This act which changed the French construction subsidy also changed the navigation bounty plan. It excluded from navigation bounties all foreign-built vessels, also French-built sailing vessels of less than 80 tons gross, French-built steamers of less than 100 tons gross, and all vessels more than 15 years old. It granted a navigation subsidy of $0.212 per ton gross per 1,000 miles to eligible French-built steamers and of $0.328 per ton gross per 1,000 miles to eligible French-built sailing vessels. These bounties were reduced annually in accordance with stipulated rates of decline. They were paid both in the overseas and the international coasting trade, but vessels engaged in the latter received but two-thirds of the full rates.

An important feature of the law of 1893 was the heavy bounty granted to sailing vessels as contrasted with steamers. The effect of this was to cause sailing vessels to be built much more rapidly than steamers. The purpose of the discrimination in favor of the sailing vessel was to enable the sailing vessels to compete successfully with the steamers. The result of the law was unfortunate, because an increase in steamers was more to be desired than an increase in sail tonnage. To overcome this and other defects, and to broaden the scope of the law, the act of 1902 was passed, the main provisions of which were as follows:

(a) Foreign-built ships were granted a shipping bounty called a *compensation d'armament,* which was practically an equipment bounty. Foreign-built iron or steel seagoing steamers of 100 tons or more gross register, admitted to French registry when not more than 7 years old, were entitled to receive a shipping bounty as follows until the vessel reaches 15 years of age: For each day the steamer is in commission, up to a maximum of 300 days per year, 5 centimes per day for each ton up to 2,000 tons; a vessel of 3,000 tons received 5 centimes per day on the first 2,000 tons, and 4 centimes per day on the remaining 1,000 tons; a vessel of 4,000 tons received 5 centimes per day per ton on 2,000 tons, 4 centimes per day on 1,000 tons, and 3 centimes per day on 1,000 tons; the rate on all tonnage above 4,000 tons was 2 centimes per day per ton.

(b) The navigation bounty granted to French-built vessels of more than 100 tons gross and less than 15 years old, engaged in the overseas trade (*navigation au long cours*),[1] was 1.70

[1] "*Navigation au long cours,* referred to in the various subsidy acts of France, includes voyages beyond the following limits: 30° north latitude, 72° north latitude, 15° west of Paris meridian, and 44° east of Paris meridian—that is, beyond ports of the Mediterranean, North Africa, and Europe below the arctic circle. *Cabotage international* includes voyages within the above limits, between French ports, including those of Algeria, and foreign ports; also between foreign ports. *Cabotage français* includes the ports of Algeria, and recently those of Madagascar." See Meeker, *History of Shipping Subsidies,* 1902.

francs per ton per annum, both for steamers and sailing vessels. The annual rate of decrease in the bounty depended upon the size of the ship, the materials of construction, and upon whether it was a steamer or sailing vessel.

(c) Vessels engaged in the international coasting trade (*cabotage international*) received two-thirds of the shipping bounty or navigation bounty.

(d) French-built vessels had the right to choose for each voyage whether to accept the equipment bounty or the navigation bounty.

(e) The bounties were granted upon a maximum tonnage of 500,000 tons gross of steamers, and 100,000 tons gross of sailing vessels, in addition to the tonnage existing at the time of the passage of the law. Of this additional 500,000 tons of steamers, not more than two-fifths could be foreign-built.

(f) That sailing-vessels may receive the benefit of the law, they were obliged to have cargoes equal to at least two-thirds of their net tonnage during at least two-fifths of the distance of the length of their voyage.

(g) Five per cent of the bounties was to be retained by the government for distribution among the crews, and six per cent of the bounties was to be paid as a contribution to the support of the marine hospital.

The general navigation bounties paid in France at present are mainly under a statute of April 18, 1906, the acts of 1893 and 1902 applying only to vessels which were at that time under the French flag or which "may be nationalized before the promulgation of this law" or "those which have been the subject of a declaration of priority, in order to benefit by the provisions of the law of April 7, 1902."

The act of 1906 applies the equipment bounties (*compensation d'armament*) to both French-built and foreign-built vessels. The vessels may not be older than 12 years or less than 100 tons gross, and, if foreign-built, they must have been registered under the French flag within two years after construction. As stated by Mr. G. M. Jones in a report issued

by the United States Bureau of Foreign and Domestic Commerce: [1]

The equipment bounties of the law of 1906 vary with the tonnage of vessel, days in commission, character of propelling power (whether sail or steam), speed, quantity of cargo, and average daily run. They are paid for the entire time the ship is in commission and are not limited to 300 days per year, as was the case under the law of 1902.

For steamers the grant is 4 centimes ($0.00772) per ton per day for the first 3,000 tons, 3 centimes ($0.00579) additional for each ton between 3,000 and 6,000 tons, and 2 centimes ($0.00386) additional for each ton between 6,000 and 7,000 tons. No bounty is paid on tonnage in excess of 7,000 tons.[2]

For sailing vessels the amount granted is 3 centimes ($0.00579) per ton per day up to 500 tons, 2 centimes ($0.00386) additional for each ton between 500 and 1,000 tons, and 1 centime ($0.00193) additional for each ton in excess of 1,000 tons.[3]

An exception to the age limit of 12 years is made in the case of sailing vessels that were constructed in accordance with the law of January 30, 1893, and admitted to French registry before November 1, 1901, and comply with the other provisions of the present law. Such vessels are entitled to equipment bounty at the rate of 3 centimes ($0.00579) per gross ton per day in commission for a period of three years from the time they cease to benefit under the law of 1893. They must, however, show that they have carried during at least two-fifths of their total voyage cargo representing in freight tons at least two-thirds of their net register tonnage.

These rates are increased by 10 per cent in the case of ships having a speed of at least 14 knots per hour; by 20 per cent for 15-knot vessels; and by 30 per cent for vessels of 16-knot speed. The rate on vessels of less than 10-knot speed, on the contrary, is reduced 15 per cent; and vessels of less than 9-knot speed are excluded from the provisions of this act. Specified

[1] *Government Aid to Merchant Shipping*, 152.
[2] Law of April 18, 1906, art. 4.
[3] *Ibid.*, art. 8.

volumes of cargo in proportion to a vessel's net register tonnage must be carried in order to receive the full subsidy; and a minimum scale of average daily runs, varying for vessels of different speeds, is provided.

The act of 1906 is supplemented by an act of February 28, 1912, which retains certain benefits of the act of 1893 in the case of sailing vessels; and also by a decree of September 21, 1911, which extends the general subsidy plan to the merchant vessels of French colonies. In 1912 the navigation bounties paid by the French Government were $561,019 under the act of 1893; $1,773,690 under the act of 1902; $1,308,808 under the act of 1906; $217,899 under the act of 1912; a total of $3,861,416.

3. France, like many other countries, has always thought it wise to give government support to her citizens engaged in deep-sea fisheries. About $120,000 annually are paid in fishing bounties.

4. In addition to the general subsidies paid by France, over $5,300,000 are paid annually as mail subventions to selected lines; which are by the terms of the contracts required to provide specified services to New York and the West Indies, Indo-China and Japan, Australia, New Caledonia, the east coast of Africa, the west coast of Africa, Brazil and Argentina, Corsica, Calais and Dover, or to Mediterranean points. The following extracts from the contract of the Compagnie des Messageries Maritimes of December 30, 1911, as presented by the United States Bureau of Foreign and Domestic Commerce[1] shows that the French mail subvention contracts are even more exacting than those of Great Britain.

Art. 10. Vessels are to be property of concessionary and must have been built in France.

Construction of new vessels must be so arranged that their average age 6 years after these provisions have gone into effect will be less than 12 years.

[1] *Government Aid to Merchant Shipping*, 156, 157.

Art. 13. All equipment must be equal to that of the best French liners.

Art. 15. The administration reserves the right to supervise the construction of new vessels of the company.

Art. 16. The company is required to communicate to the Minister of Marine all plans for each new vessel's accommodations that he may make changes necessary to fit the vessel for war service.

Arts. 17 and 18. A vessel before acceptance must undergo thorough examination by a special commission.

Art. 21. Fuel supply must consist exclusively of coal of French origin.

Art. 22. Except in case of emergency all changes and extensive repairs to be made in French workshops.

Art. 23. In case of loss of vessel the company is not allowed to interrupt service on plea of force *majeure*, but may place temporarily in postal service a vessel not conforming entirely to specifications. A maximum period of two years is granted for use of such substitute, after which a vessel fully conforming to specifications must be provided.

Art. 24. Strength and personnel of crew shall be fixed by Minister on recommendation of Minister of Marine.

Art. 28. The Minister fixes, on the proposal of the company and with regard to exigencies of the service, the itinerary of vessels. Certain variations therefrom are permitted if it appears that they do not injure the service.

Art. 29. Departure from France may not take place before arrival of dispatches from Paris. The delay must not exceed 12 hours without the company's consent. No indemnity is allowed for the delay.

Art. 57. Reduction shall be made in the fare of officials or bursars, their families and domestics, traveling at expense of Government of France or her colonies. Reduction, applying to transportation and meals, 25 per cent or 35 per cent for lower-deck passengers.

Art. 58. The company must reserve a certain proportion of places for Government troops or other Government passengers on vessels preparing for departure, the proportion being reduced after a specified day prior to the vessel's departure. The proportions and dates vary between the different lines, according to detailed regulations.

Art. 63. The company shall transport, on requisition, the bodies of soldiers, sailors, or officials who have died abroad or in the colonies, at 50 per cent of first-class fare.

Art. 65. Company shall reserve up to 10 days before sailing one-tenth of its cargo capacity for materials, provisions, and animals destined for use of the Government or the colonies. After the tenth day prior to sailing the places not retained by the Government may be sold.

Transportation of material of the Colonial Department is effected on conditions agreed on by that department and the company and approved by the Minister of Finance. For other departments the rate is 30 per cent less than the commercial tariff.

That these mail subventions have been more effective than the general navigation subsidies of France is well established. The experience of France is a lesson in subsidy methods rather than a proof that all direct aid to shipping is inadvisable.

5. The subvention contract of December 30, 1911, of the Compagnie des Messageries Maritimes not only provides for the payment of a subvention, but also for the reimbursement by the French Government of the tolls paid to the Suez Canal Company.

6. Under the act of May 31, 1917, which was enacted as a war measure, the French merchant marine is further aided by loans which may be obtained from the French Government for construction purposes.

The French Government aids ships indirectly by reserving to French vessels the coastwise trade between points in continental France, and unless contingencies arise also the trade between France and Algeria. Certain French steamship lines are also aided somewhat by slightly reduced railroad rates on freight moving in their vessels. Only a portion of the French steamship lines have adopted the reduced tariff because the concession in rates is small and the tariff carries with it various conditions that are not acceptable to all ocean carriers or shippers.

The German Merchant Marine Policy

The merchant tonnage of Germany in 1914 just prior to the outbreak of the war in Europe was 5,459,000 tons gross;[1] and it had increased 106 per cent since 1900 and 247 per cent since 1890. Indeed, the growth of the German merchant marine has been so rapid that it has at times been wrongly assumed that the government fostered it with large subsidies or subventions. The rapid growth is traceable mainly to favorable economic conditions and to indirect government assistance. German shipping has been favored by low operating costs; cheap iron and steel and low ship construction costs; extensive coöperation between steamship lines; a rapidly growing foreign commerce; and a heavy flow of emigrants through German ports. Russian emigrants were effectively directed by the Hamburg-American and the North German Lloyd lines at ten central control stations on the Russian border.[2]

These economic advantages have been furthered by a limited amount of direct government aid to shipping and by various indirect means. Specific subventions have been paid chiefly to two lines operating under mail contracts. The North German Lloyd Company under the original act of July, 1886, received 4,400,000 marks ($1,047,200) annually for three services furnished respectively by lines operating from Bremerhaven to Oriental points, from Bremerhaven to Australia, and from Trieste to Alexandria in the Mediterranean. The Mediterranean line was discontinued in 1893, and the total annual subvention to the company was increased to 5,590,000 marks ($1,330,420) in 1898 under a new 10-year contract effective in 1899. Still later the company received over 6,000,000 marks per year, but the budget for the fiscal year beginning April 1, 1914, was cut in half, the North German Lloyd receiving but $724,710 for its Oriental and Australian mail contract

[1] *Lloyd's Register of Shipping, 1914.* Steam tonnage gross, sailing tonnage net, vessels of 100 tons or less excluded.

[2] *Fairplay,* March 30, 1916.

services.[1] The other line receiving substantial mail subventions, until the outbreak of hostilities, was the German East Africa Line, the annual payments for a service between Hamburg and Cape Town and intermediate African ports amounting to 1,350,000 marks ($321,300). Several other lines have received small subventions, and vessels not operated under mail contracts received mail pay for the mail services rendered, but the entire direct aid rendered by the German Government before the subvention to the North German Lloyd was reduced in 1914 did not exceed $2,400,000 annually.

The German Government policy has been one of indirect aid supplemented by well-directed subventions. One of the most effective indirect plans has been that of preferential railroad rates on German exports. These rates are of two kinds: (1) The state railroads grant general export rates on nearly all export commodities shipped on through bills of lading, thereby encouraging the export trade. (2) They also grant unusually low special export rates on shipments destined to the Levant or to East Africa via the German Levant Line and the German East Africa Line respectively on through bills of lading. The former export rates encourage German exports and shipping generally and direct it toward Hamburg and Bremen, and the latter take the additional step of specifically directing cargoes to selected German steamship lines.

German shipping is also aided indirectly by the policy of free shipping except in the case of vessels operating under subventions; by exempting foreign shipbuilding materials from the payment of duties; by granting preferential railroad rates on shipbuilding materials transported by the state railroads from the Rhine iron and steel centers to the shipyards of Bremerhaven and Hamburg; and by granting profitable naval contracts to promote shipbuilding. As in the case of Great Britain the navigation laws of Germany are liberal. In 1895, for example, after lengthy negotiations with the British Board of Trade in the hope that the ship measurement rules of Great

[1] U. S. Bureau of Foreign and Domestic Commerce, *Government Aid to Merchant Shipping*, 84.

Britain would be changed so as to give a net tonnage approximating real net capacity, the German Government abandoned its own measurement rules and substantially adopted those of Great Britain, thereby putting German and British ships on a competitive basis with references to tonnage charges. Similar action was not taken in the United States until 1915.

Government Aid in Japan

Japan is another country whose maritime policy merits consideration. At the close of the war with China, Japan decided to give liberal government support to the development of a merchant marine, and in 1896 she adopted a policy of granting construction and navigation bounties. Her previous aid to ocean navigation had been confined to mail payments which amounted to less than $500,000 a year.

1. The construction bounty granted to vessels of Japanese construction under the act of 1896 was 12 yen ($5.98) per ton on steel vessels of 700 to 1,000 tons register, and 20 yen per ton for larger vessels. A bounty of 5 yen per indicated horse power was also given to those vessels whose machinery was made in Japan. The construction bounties paid under this act fluctuated greatly, their highest level being reached in 1908 with $799,000.

A new construction bounty law, which became effective January 1, 1910, limits the payments to steel vessels of at least 1,000 tons gross. It divides eligible vessels into two classes according to whether they have or do not have accommodations for prescribed numbers of passengers, and into four grades corresponding to the Shipbuilding Survey regulations of Japan and the extent of their equipment. The construction bounties under the act of 1910 range from 11 sen (about 5.5 cents) to 22 sen (about 11 cents) on the gross tonnage of the hull; and 5 sen (about 2.5 cents) per actual horse power if the subsidized vessels are equipped with Japanese engines and the sanction of the Minister of Communications has pre-

viously been obtained. In 1910, following the adoption of the new law, $559,000 were paid in construction bounties.

2. The general navigation bounties provided for by the Japanese Act of 1896 granted to iron and steel steamers owned by Japanese, and operated under the Japanese flag between Japan and foreign ports, a subsidy of 25 sen (about 12½ cents) per ton gross per 1,000 miles run for vessels of 1,000 tons and 10 knots speed. The subsidy increases with the size and speed of the vessel up to a maximum of 60 sen per ton per 1,000 miles for steamers of 6,000 tons or larger having a speed of at least 17 knots. Foreign-built vessels less than five years old, as well as domestic ships, received the bounties. The subsidy was paid in full for 5 years, after which the payments were reduced 5 per cent each year, and were terminated at the end of 15 years. The general bounties paid on navigation increased rapidly, and reached their maximum in 1899, when they amounted to $1,992,600; after that year, however, the navigation bounties rapidly fell off, because the Japanese Government passed a law in 1899 which provided for the substitution of a larger number of special subventions by contract with particular companies, to take the place of most of the general navigation bounties obtainable under the law of 1896, and because the general navigation bounties on foreign-built vessels less than 5 years old were reduced by one-half.

The general navigation bounty plan was further modified by an act of January 1, 1910, which repealed the act of 1896 as amended in so far as it applied to the lines operating to Europe, Australia, North and South America. Vessels operating to those continents and receiving bounties under the old act were permitted to continue receiving them until the expiration of their contracts in 1914, but in that case they were barred from subsequently benefiting under the act of 1910. The general navigation bounties paid in Japan in 1910 after the new law became effective amounted to about $910,500.

3. The original act of 1896 specified fifteen subsidized routes over which subventions were paid to special lines. These

payments were announced as mail subventions, but their prime purpose obviously was to encourage Japanese trade and shipping over selected routes. The policy of depending more largely upon special subventions was adopted by Japan in 1899, because the navigation bounties of the law of 1896, although imposing a heavy drain upon the treasury of the empire, were not enabling the Japanese steamship companies to succeed satisfactorily in competition with foreign lines. The amounts paid in special subventions then increased from $269,000 in 1898 to $452,000 in 1899; $2,074,000 in 1900; and $4,219,700 in 1909.

The act of January 1, 1910, abandoned the general navigation bounties entirely in the European, Australian and American trades, with the proviso that lines entitled to bounties under the act of 1896 as amended may continue to receive them until the expiration of their contracts in 1914. The new act of 1910 authorizes the payment of special subventions to Japanese lines operating in the above-mentioned trades. The statute provides that the subsidized vessel must have a tonnage of at least 3,000 tons gross, and a speed of at least 12 knots per hour; and that it must be less than 15 years old. The standard subvention may not exceed 50 sen (about 25 cents) per ton gross per 1,000 miles. The amounts paid on vessels having a speed in excess of 12 knots per hour may, however, be increased by 10 per cent; those paid on vessels older than 5 years are reduced by 5 per cent; and those paid on vessels built according to plans especially approved by the government are increased 25 per cent. It is, moreover, provided that the subventions shall be reduced 5 per cent annually after the fifth year. Foreign-built vessels receive one-half of the regular amounts, and only those that were registered in Japan since September 30, 1899, and have held a Japanese register for at least 5 years are eligible. Besides being required to carry the mails, the subsidized lines are in many respects under the control of the Minister of Communications, who supervises their rates and fares; their termini and ports of call; their number, gross tonnage, speed and age;

the number of voyages, number of days for each voyage and schedules of departure and arrival; the method of paying the subventions; and disciplinary measures in case of failure to conform to requirements. Various additional regulations, moreover, are contained in the statute itself. In 1910, after the new law became effective, a total of $5,911,000 was paid to lines operating over special routes, and it is reported that additional services have been subsidized since the beginning of the war in Europe.

4. In addition to the construction bounties, general navigation subsidies and special subventions, which comprise the principal parts of the Japanese direct subsidy program, smaller amounts are paid as bounties for training seamen; as lifeboat bounties; and as fishing bounties. An act of 1905, amended in 1909, limits the Japanese fishing bounties to 150,000 yen (about $75,000) per year.

Japan has since 1910 paid over $6,800,000 annually in direct subsidies and subventions, or more relative to the total merchant tonnage than has been paid by any other country. The Japanese merchant marine has a tonnage of something over 2,000,000 tons gross. It has, however, increased 138 per cent since 1900 and 608 per cent since 1895, when the total merchant tonnage of Japan amounted to but 254,692 tons gross. The subsidy plan of Japan was originally modeled after that of France, but the tendency to pay more in the form of subventions to special lines rather than in the form of general navigation subsidies has been even more pronounced.

The direct aid to Japanese shipping and shipbuilding has been supplemented since 1910 and 1911 by the policy of excluding foreign vessels from the Japanese coasting trade. Foreign-built vessels may be registered under the Japanese flag, but their owners are required to pay import duties; in fact, the raising of the duties on ships in the tariff law of 1911 from 10 per cent ad valorem to 15 yen (about $7.47) per ton gross on vessels less than 10 years old, and to 10 yen (about $4.98) on vessels over 10 years old, was preceded by a large purchase of foreign vessels.

After the law of 1911 became effective some foreign vessels were nevertheless purchased, particularly for registry at Dairen, Port Arthur, which is a free port without import duties, and which also permitted the free registration of vessels. The practice of registering foreign-built vessels under the Japanese flag at Dairen continued even after the government in 1914 imposed a tax of 30 sen (about 15 cents) per net registered ton on vessels documented at that port. Japan likewise does not exempt foreign shipbuilding materials from the payment of import duties.

The increase in the merchant marine of Japan is not traceable wholly to the exceedingly liberal aid rendered by the government. It is partly due to the forced acquisition of vessels for use as transports during the war with China in 1893 and 1894, and again during the war with Russia in 1903-04; partly to the nation-wide desire to develop Japanese industries and commerce, and the insularity of the empire; and partly also to low operating costs, due mainly to cheap bunker coal and favorable labor costs.

Summary of Foreign Aid to Shipping

Although the British, French, German and Japanese programs of government aid indicate the divergent practices of the principal foreign maritime countries, many other countries aid their shipping and shipbuilding industries. In 1909-10, for example, the United States Commissioner of Navigation [1] estimated that nearly $47,000,000 was paid by the foreign countries of the world in general subsidies and special subventions to shipowners and shipbuilders. In that year the world's merchant marine, excluding the tonnage of the United States and foreign vessels of 100 tons or less, amounted to less than 36,500,000 tons.[2] There are, moreover, forms of indirect as well as of direct aid not practiced in the four great maritime countries that were selected for separate discussion.

[1] *Annual Report, 1909*, pp. 20, 21.

[2] *Lloyd's Register, 1909-10.* Steam tonnage gross, and sailing tonnage net.

The direct aid rendered by foreign governments in actual money payments may be briefly summarized as follows:

1. The largest amounts are paid in specific subventions to selected domestic lines operating under contract. They are variously paid in the form of mail, trade, colonial or admiralty subventions. Some are paid on a mileage or distance basis; others are fixed amounts per year. They usually constitute permanent payments, but the government of the Netherlands pays various trade subventions under arrangements that require repayment from the future profits of the companies. The requirements imposed by subventions in the contracts also differ in many respects, but all of them require the performance of specified services.

Some of the subvention contracts border closely on government control. The Austrian Government, for example, appoints three out of nine directors of the Austrian Lloyd Steamship Company, and the Dutch East India Government, under a mail subvention contract, may be represented at all board meetings of the Java-China-Japan Line, and the government supervises the election of the company's directors and representatives. Several governments without owning any capital stock have nevertheless been entitled to share in the excess profits or earnings of certain private subsidized lines.[1]

2. Various countries pay specific subventions to foreign lines. Brazil, for example, subsidizes various Italian lines; Chile makes payment to several British lines; Mexico, Peru and Guatemala subsidize a few foreign lines; and Bulgaria pursued the same practice until 1910. Before the war in Europe, Belgium subsidized two German lines to induce them to make a prescribed number of stops at Antwerp in the East Asiatic and Australian trade. New Zealand subsidized the Ocean Steamship Company, an American line, under a mail contract which terminated on November 10, 1906.

3. In contrast with special subventions are the general navigation subsidies that are paid to all shipowners who come

[1] *See* U. S. Bureau of Foreign and Domestic Commerce, *Government Aid to Merchant Shipping*, 28, 29.

within the terms of a subsidy law. They were especially mentioned above in connection with the French and Japanese subsidy plans, but such subsidies are also paid on a large scale in Austria and Hungary, Italy and Spain; and on a smaller scale in various other countries.

4. Shipbuilding subsidies or bounties were also mentioned in connection with the French and Japanese subsidy programs. Other countries also endeavor to promote their shipbuilding industries in this way. Austria-Hungary, Italy, Russia and Spain make substantial payments each year. Brazil offers a construction subsidy, but seemingly no actual payments have thus far been made.

5. Several countries specifically reimburse to specified domestic vessels all or part of the canal tolls that they are obliged to pay. Austria reimbursed Suez Canal tolls to the Austrian Lloyd Steamship Company; Russia reimbursed the Suez tolls paid by Russian vessels trading at any Russian port in the Far East, and two-thirds of those paid by Russian vessels sailing to or from ports of the Indian Ocean and foreign ports of the Pacific; Sweden refunds specified proportions of the Suez tolls paid by the Swedish East Asiatic Company; and Italy reimburses the tolls paid by one Italian line using the Corinth Canal. The reimbursement of Suez tolls to the Compagnie des Messageries Maritimes by the French Government was noted in connection with the French subsidy plan.

6. Several countries have made loans to steamship companies on favorable terms. Great Britain, as has been noted, made a large loan to the Cunard Company. Various loans have also been made by the governments of Russia and Belgium; Sweden has embodied the policy in a general statute that was enacted in 1903; and France enacted a similar law as a war measure in 1917.

7. Miscellaneous payments are made in the form of fishing bounties, naval-reserve payments and payments for training seamen.

Many plans of indirect aid to shipping and shipbuilding prevail in foreign countries. General and special export rail

rates; the exclusion of foreign vessels from the coasting trade; the free entry of foreign shipbuilding materials or their importation at reduced duties; complete or partial "free shipping"; and naval shipbuilding contracts have already been noted. There are, however, many other indirect methods of government assistance to shipping in foreign countries. Denmark, Belgium, Chile, Argentina, Peru and Mexico have exempted certain vessels from the payment of harbor, pilotage or shipping dues of various kinds, or have reduced the regular dues in their favor; Austria and Hungary exempt certain vessels from the payment of income or trade taxes; Belgium has agreed to send government stores and officers to the Belgian Congo via a single selected line. As does the United States, so do many foreign countries aid shipping indirectly by improving rivers, harbors and canals; by increasing the safety of navigation, and by promoting foreign commerce.

Government Owned Steamship Lines

The policy of government ownership and operation of merchant steamships has never been widely adopted in foreign countries, but various instances may be cited. In 1903 the Russian Government purchased the property of the then insolvent Russian Danube Steamship Company; and in 1895 it subscribed to 56 per cent of the capital stock of the reorganized Archangel-Murman Steamship Company. The relation of the Russian Government to the Russian Volunteer Fleet, moreover, is so close that it approximates complete government control. Belgium owns a number of vessels that have been operated between Ostend and Dover in connection with the Belgium state railways. The number of vessels so owned and operated in 1914 was eleven. The Roumanian Government has owned and operated three steamship lines; one between Constanza, Constantinople and Alexandria, another between the Danube and Rotterdam, and a third line providing a local service on the Danube River. The Italian Government, through the Italian state railroads, provides various

steamship services between the mainland of Italy and Sardinia and Sicily. The government railways of Japan also own four steamers which are operated in the Korean trade; those of France own eight steamers which operate between France and England; and those of Sweden own three steamers. The government of Brazil, moreover, has since 1913 owned the Lloyd Brazileiro, the principal Brazilian steamship line; West Australia has since 1913 owned a small line of coasting steamers; and in 1916 the Australian Commonwealth purchased fifteen steamers to operate between Australia and Europe.

Some of the lessons that may be drawn from the experience of foreign countries have a direct bearing upon the merchant-marine question in the United States, which will be considered in the following chapter.

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CHAPTER XXXII

THE MERCHANT MARINE QUESTION

The need for a registered merchant marine, 487. Shipping as a means of developing foreign trade, 488. Freights paid to ocean carriers, 489. The passenger and mail bill, 489. Relation between merchant shipping and national defense, 490. Increased government aid, 490. Subventions or subsidies as a merchant marine policy, 491. Objections to general navigation subsidies, 492. Specific subventions desirable, 495. Government ownership as a merchant marine policy, 497. Experience of foreign countries, 497. Dual system of private and government operation not advantageous, 499. Government ownership in the United States, 499. Revision of navigation laws as a merchant marine policy, 500. A suggested program of government aid, 501. Importance of private initiative, 505. References, 505.

THE future prospects for a deep-sea merchant marine under the United States flag is brighter than it has been at any time since the Civil War. Economic conditions are gradually becoming favorable; capital is abundant in the United States, and the difference between the ocean shipping industry and other fields of investment is less pronounced than it was.

THE NEED FOR A REGISTERED MERCHANT MARINE

The need for a large American merchant marine in the foreign trade is widely although not universally recognized. Under normal conditions of peace the exporters of the United States are in direct competition with those of Great Britain, France, Japan and other industrial countries, and ocean transportation facilities have an important bearing upon their relative abilities to sell and deliver their wares in the competitive markets of the world. Of hardly less vital consequence are adequate shipping facilities for the import trade of the United

States. A growing share of both the export and the import trade is shifting to the non-European countries of the commercial world, and in the trade with these countries the shipping facilities of the United States have been inferior to those of the principal foreign rivals. It was the realization of the vast future importance of this non-European trade that first directed the attention of the business world to the need for a larger registered tonnage under the American flag. To depend almost entirely upon foreign ships in this competitive trade is short-sighted, not only because many of the concerns operating them also operate steamship lines between Europe and the identical foreign markets desired by the United States; but also because foreign vessels can hope for no direct assistance from the United States Government. They cannot provide a better service than the traffic and profits of the present moment or of the immediate future warrant. American steamship concerns, on the contrary, with a reasonable amount of public assistance, could provide ocean services that would assist foreign trade development as well as furnish a current means for transporting merchandise.

Before the war in Europe began there was little cause for complaint regarding the ocean services between the United States and the Old World. Most of them were provided by European lines, but it was to the interest of these lines as well as of most of their European customers that the services provided should be of the best quality. Indeed, some of the foreign lines operating between the United States and European ports were subsidized by their home governments, as were also the Japanese lines operating between American and Japanese ports. The war, however, changed these normal shipping conditions radically, for it occasioned a shortage in tonnage and a level of freight charges so high that many of the vast number of American concerns interested in the European trade came to see the need for an American merchant marine. American vessels differed from those of the registry of the belligerent countries in that they could not be freely removed from merchant services to serve as transports, naval colliers, hos-

pital ships or in other war capacities, nor were they interned; and their freedom on the high seas, although interfered with by the belligerent powers, was not entirely curtailed.

The freights paid to ocean carriers is also an economic factor of importance in normal times of international commerce. It is estimated [1] that in 1914 the total sum paid for transporting the exports and imports of the United States on the sea amounted to $153,500,000, of which 90 per cent, or about $138,150,000, was paid to foreign ocean carriers, including the million or more tons of foreign shipping of American ownership. By no means all of this was paid by American concerns, for the freights on exports are usually paid by the foreign purchasers or are, when possible, shifted partly or wholly to them in the prices paid, yet it indicates the extent to which the freights on exports and imports are a source of income to ocean carriers. The freight charges on the imports of the United States were estimated at $52,131,000, of which approximately $46,818,000 was paid to foreign ocean carriers, including foreign vessels of American ownership. This much at least might be saved to the nation if the imports were carried in American vessels, for the ocean rates on imports are usually paid by the importing nation. Foreign countries that receive this money are obliged to make certain expenditures in American ports for provisions, fuel, etc., but since these expenditures would also be made if the imports were brought in American vessels it is doubtful whether they should be deducted in computing the net sum which the United States pays to foreign carriers for ocean transportation. A large amount, at least $100,000,000,[2] is in normal years paid by passengers traveling by sea between the United States and foreign countries, and most of this amount is paid to foreign carriers; and about $1,300,000 or $1,400,000 is normally paid each year to

[1] National Foreign Trade Council, *Ocean Shipping*, p. 20 (2d ed., March, 1917).

[2] The president of the International Mercantile Marine Company estimated the revenue from the passenger traffic across the north Atlantic, including that of Canadian ports, to be as follows: 1912, $97,993,156; 1913, $115,188,541; 1914, $69,236,051; and 1915, $24,042,558.

foreign lines for carrying the ocean mails of the United States.

It is well understood that there is a close relation between merchant shipping and the national defense. For many years before the war in Europe one of the admitted purposes of the subventions paid by foreign countries was to provide themselves with vessels of such speed, type and structural material as would readily make them available for naval and military auxiliary and transportation services in time of war. Many foreign countries have for the same reason taken steps to develop a large body of seamen and officers who would be available in time of war. The nationality of the officers and crews of subsidized vessels is usually restricted, and in some countries, such as France, Spain and Italy, the restrictions apply generally. European countries, except Great Britain, have compulsory military service, which applies to men following the sea as well as to those employed on land; and, as was stated in the preceding chapter, the British Government pays large sums to merchant officers and seamen under her naval reserve plan.

Increased Government Aid

The United States Government has, since 1909-10, begun to do more to promote American deep-sea shipping than at any time since the Civil War. It now permits American concerns to purchase ships abroad for registry in the foreign trade; its taxes are light; it pays limited subsidies to lines operating under mail contracts, and at the same time has inaugurated a government ship-purchase plan; it requires attractive labor conditions for seamen employed on American vessels; and it expends large sums in the improvement of rivers, harbors and canals, and in the promotion of the foreign trade and the safety of vessels at sea. The Shipping Act of September 7, 1916, legalizes ocean conferences, but at the same time prohibits obnoxious practices such as deferred rebates, retaliation and the use of fighting ships; and it subjects ocean conferences to supervision by the United States Shipping

Board. It will be easier in the future for newly organized ocean lines to obtain traffic and to gain a foothold in the foreign trade than before this legislation was enacted. The disadvantage of the past resulting from the more liberal exemption of spaces from British ship measurement has, moreover, been removed.

Though economic conditions are more favorable to shipping than they have been in the past, and though the United States Government is making an effort to be of real assistance, the United States still has a "merchant marine question." The operating costs of American vessels being normally higher than those of foreign vessels, it is difficult for the American merchant marine engaged in the foreign trade to compete successfully. The war conditions that now prevail are largely non-competitive; there is no guarantee that operating costs will not again become a determining factor when normal conditions return.

Subventions or Subsidies as a Merchant Marine Policy

Three main lines of government action have been suggested: The plan of longest standing in foreign countries is that of government subsidies or subventions to private shipowners. It has been attempted in the United States in the past, and in a modified form is in effect in the United States at present. It is the policy followed by the principal maritime countries of the world. Although this experience of foreign countries does not necessarily assure its wisdom and success in the United States, the successes and failures of foreign nations should not be overlooked. Foreign experience is an especially valuable guide in determining the particular kind of subsidy or subvention that is the most economical and effective. Minor variations in the form of subsidies or subventions may readily be adjusted to the needs of a particular country. The lessons of foreign experience have to do mainly with the broad principles that underlie them. Subsidies and subventions for the aid of navigation are of two distinct kinds: general navi-

gation bounties, such as France, Austria-Hungary, Italy and Japan give, and special subventions, such as France, Germany, the United Kingdom, Japan and various other countries grant to particular lines of steamers to secure special services. General navigation bounties are subsidies, pure and simple, while special subventions are in part subsidies and in part payments for special and extraordinary services desired by the government for postal, naval, and commercial reasons. The two forms of government aid stand upon a different footing.

In favor of the policy of granting general navigation bounties, it may be argued: (1) That since the primary purpose of the bounty is to offset the economic and other disadvantages to which the shipping to be aided is subject, as compared with the foreign shipping with which competition must be carried on, the natural and surest way to equalize conditions is to aid all ships in the national marine, and to give them all the same measure of assistance. (2) In this way, government aid will, it is claimed, most surely contribute toward a well-rounded development of shipping—to an increase in passenger steamers, in cargo steamers, in sailing vessels, and in the fishing fleet. (3) A third argument for the general navigation bounty is that it does not discriminate; it helps the weak as well as the strong; it treats all alike.

Many bills providing for general subsidies have been introduced in Congress, but none has ever become a law. There are certain objections to general navigation bounties that weaken or overcome the arguments just advanced in their favor:

1. In the first place, general bounties on navigation are subject to the criticism that was urged against ship construction bounties in a former chapter. The force of this criticism in the case of navigation bounties is weakened somewhat, it is true, by the fact that a large and prosperous merchant marine is of even greater importance than is a flourishing shipbuilding industry to the industrial, commercial, and military progress of a country.

2. A country, with a relatively small shipbuilding industry,

that is not able to compete with foreign shipyards in constructing merchant vessels for the world market, may yet be able to supply the domestic shipping interests with highly efficient vessels and also be able to construct war vessels of the highest type; but no country can become and remain a first-class naval power unless it has a large body of hardy seamen from which to draw its crews to man its war vessels; nor can a great commercial country, such as the United States has come to be, confidently hope to extend its markets over the world in successful competition with its powerful commercial rivals, unless its merchants and producers are served by lines of mail and freight steamers connecting the United States with all the leading foreign centers of trade and production. This consideration, however, is rather an argument in favor of giving ocean navigation vigorous government support than a justification of the policy of general bounties on all shipping.

3. The third argument in favor of the general navigation bounty may be cited with equal force against that policy. From the standpoint of practical results, government aid that does not discriminate between different kinds of shipping—that helps alike the weak and the strong—may well be criticised. The most certain method of increasing the merchant marine engaged in the international trade is to pick out the stronger lines of vessels and give them such assistance as will enable them to meet foreign competition successfully and to increase the tonnage of their fleets year by year. The way to get results is to strengthen the strong. Moreover, the weak are ultimately benefited by this policy—a fact well shown by what has taken place in Great Britain and Germany, where the plan of aiding a limited number of companies has prevailed. This fact was brought out by the well-known Merchant Marine Commission of 1905, and although the commission made another application of the argument, the words of its report may well be quoted in this connection:[1]

> It may be said that British "tramps" and German "tramps" receive no subsidy, and that they are numerous. That is true,

[1] Vol. I, page xvii.

but indirectly even the "tramps" are and have been sharers in the general policy of national encouragement. The first British "tramps" years ago were built in yards and engined by machine shops that had been created and developed by the parliamentary grant of subsidies to the Cunard Line, the Peninsular and Oriental, and the Royal Mail. These subsidies had an immediate and widespread effect upon the entire art of steamship construction in Great Britain, and gave that country at a critical stage an overwhelming advantage as against America.

The same process is now under way in Germany. Yards which build the subsidized liners, and have their materials delivered at nominal rates by Government railways, are thereby powerfully encouraged to build "tramps" or cargo boats in the intervals when no liners are required. Moreover, the great foreign subsidized mail companies own, besides the ships that earn their subsidy, a very large amount of ordinary commercial tonnage which indirectly shares the benefit of the subventions. Thus, when the $1,100,000 subvention was recently awarded to the Cunard Line, that company was encouraged to construct not only the two great 24-knot ships, but several auxiliary vessels of moderate speed and heavy tonnage.

4. The argument of foreign experience is definitely against the policy of general navigation bounties. The European countries that have followed the policy of granting such bounties—France, Austria-Hungary, and Italy—have had but a small measure of maritime success in comparison with Great Britain and Germany, whose direct aid has consisted mainly of special subventions. The great maritime prosperity of the United Kingdom and Germany is, of course, due to economic causes and indirect forms of aid quite as much as, or more than, to their subventions; and it is not asserted here that other countries would have made as large maritime progress had they adopted the policy of the United Kingdom or of Germany, nevertheless the presumption of higher merit is in favor of the policy of the countries that have had the greatest success.

Even more convincing is the experience of the countries

that have paid special subventions as well as general navigation subsidies. France now pays over $3,860,000 annually for subventions and about $5,300,000 for navigation subsidies; and the shift to more and more special subventions has been due directly to the results traceable to them. France has succeeded in developing a substantial number of line services through the subvention plan. The same tendency toward special subventions is particularly noticeable in Japan, for the Japanese Government has been thoroughly convinced that the effective part of its comprehensive policy of public aid to shipping has been the amounts paid in special subventions to large Japanese lines running to Europe, to India, to Australia, to China and to San Francisco and Seattle.

It would seem that by picking out the routes of most commercial importance to the United States and by giving enough aid to secure and maintain efficient steamship services over those routes, the government could obtain immediate and definitely measurable returns for the public funds expended. By an annual expenditure beginning with about $5,000,000, and rising gradually to about double that sum, the United States could bring about the establishment of a score of large steamship lines, connecting American ports with the main sources from which imported foods are derived, with the countries from which American industries secure their foreign supply of materials, and with the chief markets for the sale of exported products. The steamship lines thus established would, it is believed, grow stronger and increase the number and tonnage of their vessels with the growth of American commerce and with the development of economic conditions more favorable to the growth of shipping under the American flag. In the progress of the maritime interests of the United States more is to be hoped for from promoting the growth of companies capable of maintaining well-organized and vigorous services than from scattering government aid over the entire registered tonnage.

In normal times of peace particular stress should be laid on the steamship services to the newer or non-European coun-

tries in which the United States wishes to develop markets for manufactures. The subsidizing of fast transatlantic lines is more a naval or war measure than a means of promoting the future commerce of the United States. The act of March 3, 1917, which provides a subvention at the rate of $8 per mile for each outward voyage of mail-contract steamers of not less than 35,000 tons and 30-knot speed operating between the United States and Great Britain is not adapted to the needs of the trade of the United States with countries such as Argentina, Brazil, Chile or China.

Would an annual expenditure beginning with $5,000,000, and increasing to $10,000,000, be unwarrantably large for subventions to secure an adequate ocean transportation service for the foreign mails and the international commerce of the United States? In the chapter on "The Ocean Mail Service" it was stated that in the fiscal year 1914, before the war in Europe, $11,872,000 was collected in postage on the mails exchanged with all foreign countries, and about $8,223,000 on the mails exchanged with countries other than Canada and Mexico. This sum largely exceeds the gross expense incurred by the United States for transporting the foreign mails from the interior to the seaboard and across the ocean. It would seem wise to devote to the development of the merchant marine at least as much as the gross receipts derived from the postage on foreign mails.

Care could readily be taken in the contracts under which the subsidized lines would operate to make certain that the expenditure would redound to the public welfare. The lines could be required to provide efficient mail and merchant services of prescribed frequency over selected routes between designated ports. The size, structure, and speed of the subsidized vessels could be prescribed so as to make them of more than ordinary value to the government in time of war, without, however, requiring types of vessels unsuited to the commercial purposes for which they are primarily intended. Reasonable restrictions could also be imposed as to the manning of the subsidized vessels with a view to the gradual ac-

quiring of a body of trained American seamen and navigation officers.

Government Ownership as a Merchant Marine Policy

The principal alternative plan for the direct promotion of the registered merchant marine in the United States is that of government ownership. The adoption of the federal ship-purchase plan in the Shipping Act of September 7, 1916, the terms of which were analyzed in Chapter XXVIII, makes this plan a reality in the United States, although that law did not adopt government ownership as the permanent shipping policy of the United States; for it is provided that all vessels acquired by the Shipping Board shall be sold within five years from the close of the European War. The adoption of the ship-purchase plan of 1916 was in fact inspired very largely by the exorbitant freight charges occasioned by the war; and the program was further extended in 1917, after the United States became a direct party to the war, because the rapid construction of merchant vessels became imperative as a war measure. What the policy of the government will be in the future has yet to be determined.

Government ownership as a permanent merchant marine program is contrary to the judgment and experience of the world's leading maritime countries. While government ownership of railroads has been adopted in various countries, only a few, and these of relatively small maritime importance, have considered it desirable or expedient to apply that policy on a large scale in the field of ocean transportation. The governments of Japan, France, Belgium, Sweden and Italy own and operate a small number of steamers through their state railroads; but the marine services so provided merely constitute an extension of the state railroads to relatively nearby points not reached directly by rail. The state railroads of these countries are merely doing on a small scale what many private railroads in the United States and elsewhere have done. None of these countries regards government ownership as an im-

portant part of their merchant marine policies; their governments do not operate vessels on the great ocean routes of the world.

The remaining foreign governments that own and operate ocean steamships—Russia, Roumania, Brazil, West Australia and the Australian Commonwealth—have, with the exception of Roumania, adopted the policy of government ownership in the hope of relieving what at the time of adoption was an emergency. The Russian Volunteer Fleet was organized in 1878 under a mutual or "volunteer" subscription plan toward the close of the Russo-Turkish war. Its mismanagement under the immediate control of the government has been notorious. Though it has been operated without any idea of paying dividends, the entire profits being used to increase the fleet, it has nevertheless been heavily subsidized by the government since 1886. The occasion which led to the purchase of the Russian Danube Steamship Company by the Russian Government was the liquidation of the company in 1903; and the purchase of 56 per cent of the stock of the Archangel-Murman Steamship Company was the result of the company's reorganization in 1895. Both of these lines also continue to receive heavy subventions from the Russian Government. The small line of coastwise steamers established by the Government in West Australia in 1913 was undertaken because it appeared that the Commonwealth Government would be unable to arrive at satisfactory terms with the private company that had previously provided the service. This state line also receives subventions even though it was able to borrow from the provincial government at 3 per cent interest. The steamship venture of the Australian Commonwealth has been too recently undertaken to foretell results, but it was the result of an emergency. The Prime Minister of Australia stated that the government purchased its fifteen grain-carrying vessels in 1916 because war conditions resulted in a scarcity of tonnage and prohibitive freight charges.[1]

Of the foreign countries in which the governments own

[1] *Journal of Commerce and Commercial Bulletin,* July 12, 1916.

merchant vessels, Roumania is the only instance in which this policy was undertaken as the dominant method of developing a merchant marine. The government undertook the operation of vessels in 1897 and the bulk of the Roumanian merchant marine is now owned by the government. One of the two main government lines was self-supporting, while the other was operated at an annual deficit of about $100,000. The entire merchant tonnage under the Roumanian flag in 1915 amounted to but 54,603 tons gross.[1]

Dual System of Private and Government Operation

It is extremely doubtful whether any of the countries that have adopted government ownership have by doing so actually fostered their merchant marines. The operation of government merchant vessels otherwise than in special fields for some distinct purpose as in connection with a state railroad system tends to discourage private shipping. It is doubtful whether in any country government ownership and private ownership of steamships can flourish side by side. Just as the dual system of private and government railroads has been shown by the experience of European and other countries to be impracticable, so likewise it seems reasonably certain that no country will find it permanently advantageous to have both private and government operation of steamships on the same routes. Indeed the impracticability of the dual system in ocean transportation is more probable than in rail transportation, for the ease with which vessels can be shifted from one route or one service to another creates an uncertainty that affects private steamship lines operating anywhere on the high seas. There is no certainty that government ownership can be limited to prescribed routes.

Government Ownership in the United States

The United States Government has itself operated merchant steamships for over a decade through the Panama Rail Road

[1] Thirty-three steamers, of 54,210 tons gross; one sailing vessel, of 393 tons net.

Steamship Line, but as in the case of most foreign governments that own merchant vessels it did so for a distinctly special purpose. The line was obtained when the United States acquired the stock of the Panama Rail Road Company and the vessels have been operated primarily to aid in the construction and management of the Panama Canal.

It was not until 1916 that government ownership was adopted in the United States as a merchant marine policy. The danger in the United States, as in foreign countries, is that it will discourage private shipping concerns and that it will not in the long run encourage the growth of American deep-sea tonnage. Can a dual system—private as well as government ownership—flourish side by side in the United States any more readily than in foreign countries? If not, is the United States Government ready permanently to provide all or nearly all of the tonnage operating under the American flag in the foreign trade? Indeed it is not known whether the policy will not also affect coastwise shipping, for the Shipping Act of 1916 permits government owned vessels to be operated in the domestic as well as in the foreign trade.

Should the bulk of the shipping industry in the future devolve upon the government, then the public welfare would be greatly concerned with the relative efficiency of government steamship services; with the danger of political considerations in the employment of officials and employees, in the fixing of charges and in the selection of ports. There is, moreover, no assurance that the government steamship services would in normal times be any less costly to the government than an effective subvention program. There is much in the past experience of the United States Government and of the governments of foreign countries that points to the danger of an annual deficit without the assurance of an efficient service.

Revision of Navigation Laws as a Merchant Marine Policy

A third proposal that has frequently been made is to encourage the registered merchant marine indirectly by modify-

ing or eliminating hampering navigation laws. The desirability of amending or repealing provisions that needlessly burden American shipping is obvious, but the importance of the navigation laws in this connection has too frequently been overemphasized. It would seem desirable to repeal section 13 of the Seamen's Act of March 4, 1915, which needlessly burdens American shipping by applying a language requirement, and which regulates the rating of able seamen and restricts their employment with needless severity.[1] It would also seem desirable to recast the federal steamboat-inspection requirements so as to avoid undue delay and expense to shipowners. It by no means follows, however, that the entire excess operating costs of American vessels as compared with vessels of foreign registry can or should be overcome by a revision of the navigation laws. The difference is mainly due to economic reasons.[2] Many of the requirements concerning the safety of vessels at sea, and the protection and welfare of passengers and crew, may be defective in detail, but they are not likely to be repealed, for they originated in the American concepts of public welfare and standards of living.

The principal legal restrictions, aside from the section of the Seamen's Act referred to above, have already been removed. American citizens are no longer prevented from operating foreign-built vessels under the American flag in the foreign trade; and the national measurement rules of the United States are now as liberally interpreted as those of Great Britain. It would seem that under a regime of private ownership and operation something more than a revision of navigation laws is needed to rehabilitate the registered merchant marine.

A Suggested Program

The facts presented in this and preceding chapters suggest that the United States might in the future wisely adopt the following policy of aiding its over-sea merchant marine:

[1] *See* pp. 367-368.
[2] *See* pp. 450, 458.

1. Select the ocean-trade routes of most importance to the United States, and secure by liberal subventions the establishment on each route of a line of steamers capable of performing efficiently and adequately the services required for the transportation of the foreign mails, for the extension of international commerce, and for such additional duties as may arise in case the United States should again become involved in a war. It is to be hoped that the provision of the Shipping Act of September 7, 1916, which requires the United States Shipping Board to dispose of government owned merchant vessels within five years after the close of the present European War will be adhered to.

2. The steamers on these lines thus aided should be required by law to be officered by American citizens, and to have crews containing a minimum of 25 per cent at the start, rising in five years to a minimum of 50 per cent, of American citizens. All American vessels engaged in the foreign trade, whether aided by a subvention or not, and all vessels engaged in the deep-sea fisheries, should be given an inducement to have officers and crews eligible for enrollment in the naval reserves of the United States. The bill proposed by the Merchant Marine Commission of 1905 provided as follows for the creation of a naval reserve among the rank and file of merchant seamen:

> The Secretary of the Navy and the Secretary of Commerce [and Labor] shall cause to be made an enrollment of officers and men now and hereafter employed in the merchant marine and deep-sea fisheries of the United States who may be capable of rendering service as naval volunteers in time of war. No man shall be thus enrolled who is not a citizen of the United States, or who has not declared his intention to become a citizen. Any naval volunteer who, having declared his intention to become a citizen, fails to complete his naturalization according to the provisions of title thirty of the Revised Statutes, shall be stricken from the rolls. These naval volunteers shall be enrolled for a period of three years, during which period they shall be subject to render service on call of the President in time of war. They shall also possess

such qualifications, receive such instruction, and be subject to such regulations as the Secretary of the Navy may prescribe. The Secretary of the Treasury is hereby authorized and directed, upon proper audit, to pay, out of the money in the Treasury not otherwise appropriated, to each officer or seaman thus enrolled and employed in the foreign trade or deep-sea fisheries, as hereinafter provided, an annual retainer as follows: For each master or chief engineer of a vessel of the United States of five thousand gross tons or over, one hundred dollars; for each master or chief engineer of a vessel of the United States of one thousand gross tons or over, but of less than five thousand gross tons, eighty-five dollars; for each master or chief engineer of a vessel of the United States under one thousand gross tons, seventy dollars; for each mate or assistant engineer of a vessel of the United States of five thousand gross tons or over, seventy dollars; for each mate or assistant engineer of a vessel of the United States of one thousand gross tons or over, but less than five thousand gross tons, fifty-five dollars; for each mate or assistant engineer of a vessel of the United States under one thousand gross tons, forty dollars; for each seaman, twenty-five dollars; for each boy, fifteen dollars. Such retainer shall be paid at the end of each year of service on certificate by an officer, to be designated by the Secretary of the Navy, that the naval volunteer has satisfactorily complied with the regulations, and on certificate by the Commissioner of Navigation that such volunteer has served satisfactorily for at least six months of the preceding twelve months on vessels of the United States in the foreign trade or in the deep-sea fisheries.

The retainers that would have been authorized by this bill —ranging from $15 a year for a boy, and $25 a year for a sailor or fireman, to $100 a year for the master or chief engineer of a large steamship—would have given a strong inducement to the owners of merchant marine and fishing vessels to aid the navy by creating a force of naval reserves. The existence of a naval reserve of 20,000 men among the officers and crews of the fishing fleet and merchant vessels would add greatly to the naval strength of the United States. A million dollars a year would cover the expense of paying retainers to a naval reserve of 20,000 men; and the money thus spent

would be of much assistance to the United States merchant and fishing marines. The United Kingdom appropriates over $2,300,000 annually for the maintenance of a naval reserve.

When in 1917 the United States Shipping Board undertook the construction and operation of a large number of merchant vessels it was found that at least 10,000 new officers would be needed. It became necessary as a war measure to establish recruiting stations and training schools, for the United States was totally unprepared to operate largely increased numbers of merchant and naval vessels.

The annual expenditure for the government subvention of merchant shipping in the manner suggested, and for the creation and continuance of a force of naval reserves, might warrantably reach a maximum of $10,000,000 a year. The expenditure by the United States Government during the next decade of its gross receipts from foreign postage, or a slightly larger amount, to build up the service of ocean transportation in American vessels, would be a wise policy. The steady and sure development of the foreign trade and the naval strength of the United States is of such prime importance to the country that the merchant marine and the ship-building industry may well be given the moderate direct government support that is here recommended.

3. Various navigation laws, particularly those referred to above, should be revised so as to eliminate requirements that burden American ships without assuring the accomplishment of desirable aims. Indeed the United States can not have a consistent national shipping policy, although it encourages American shipping directly and indirectly, if it, at the same time, imposes burdens through hampering navigation laws. This does not, however, mean that the safeguards against unsafe navigation should be removed, or that undesirable working conditions should be permitted.

Much of the burden attaching to some of the navigation laws would be eliminated if they were made applicable alike to foreign and to American vessels serving the ports of the United States. This general principle is not, however, a

panacea, for a provision may be of such a nature as to have an especially severe effect upon American vessels. The language requirement of the Seamen's Act, for example, applies to Japanese as well as to American vessels operating on the Pacific, but it acts as a hardship only in case of American shipowners.

4. It is highly desirable that the regulatory provisions of the Shipping Act of September, 1916, should be enforced against all concerns within its scope—foreign as well as American. It is especially desirable that the provisions concerning the supervision of ocean conferences and those prohibiting deferred rebates, fighting ships and retaliation should be enforced, so that newly established American ocean lines will not in the future be subjected to unfair competition.

In this account of governmental activity there has been no desire to minimize the imperative need for effective private enterprise on the part of American shipowners, exporters, bankers and investors. Ocean shipping and the foreign trade are deserving of government support, but public aid can but supplement private initiative.

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